# Title: Intimate bodies and technologies: A concept for live-digital dancing

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**A thesis submitted in fulfillment of the requirements for a PhD in Performance and Digital Arts**
**December 2016**

# **<u>Acknowledgements</u>**

# **<u>Abstract</u>**

This thesis considers the relationship between dance and digital media, and considers a specific type of case regarding this relationship: live and mediated. My motivation has been to identify and investigate, through practice, some of the difficulties presented when live and mediated bodies are placed within the same performance environment.  In order to challenge some of the difficulties of what I consider as the problematic medium of digital dance, this thesis offers an examination of the ways in which digital media can positively transform the processes of making movement, and explores how the assimilation of media, as an integral agent within movement generation, can counter the dominance of the digital.

Such dominance has been considered using a Practice As Research (PaR) model, and thus the thesis exemplifies both the creation of, and a deep reflection on, three works: *Shift* (2010-11), *Betwixt & Between* (2012-13) and *Modulation_one* (2013-14). Through the development of these works, I have sought to formally analyze and illuminate how media technologies, and in particular projection, can enrich the processes for making movement. This has been done in the context of a proliferation of digital technologies being available within a studio setting. In particular, the works have been established from the perspective of the dancer, which represents a specific case study for challenging the dominance of the digital.

What follows in the written thesis is an analysis of what is a continuing and emerging practice. The written thesis therefore serves as both a document of the process and presents an illustration of a methodological approach for generating synergistic relationships with movement and projection. This relationship is proposed as a concept for live-digital dancing, which represents the main contribution to knowledge. The term live-digital advances the idea that a dancer is neither bound or restricted by either a live or digital construct, rather she is inspired to move and respond, in the moment of performance, to an unfolding assemblage of live and digital materials. Significantly, this has been established

through the experiential encounters of the dancer moving with simultaneous projections of self. Live-digital therefore offers a methodological approach for constructing digital dance performance environments, which place perception and experience at the fore.

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# Introduction

# Intimate bodies and technologies: A concept for live-digital dancing

This study confronts, and aims to extend further, some of the continuing questions and practices surrounding the intriguing, yet potentially problematic, relationships between new media technologies and live performance, which has been variously termed digital performance, mediated performance or performance and new technology (Bailey 2007). This research project began with a desire to explore the complex nature of combining choreography and media production through practice. What has evolved is a methodology for enabling live and digital bodies to act together. The explicit focus on practice, which has been crucial for developing a methodological approach to challenging the problematic relationship, offers a specific case study. One of the overriding difficulties of presenting both live and digital media within the same perceptual field, and specifically in terms of making digital dance performance, is the potential lure and seduction of the technology besides the real and fleshy body of the dancer. Highlighting the importance of embodied experience, above and beyond technological application within digital dance performance, is therefore the subject of the thesis.

What arises in the following chapters is an examination of a choreographic enquiry that has sought to confront the problematic relationships between dance and technology, which I will refer to as digital dance performance. To do this, the practical enquiry firstly established a comprehensible technological environment, which became progressively destabilized and changed by paying particular attention to the semantic and experiential encounters of the dancer. The works presented in the thesis therefore developed through embodied experience, which over time became enlightened and enriched through a particular methodology for perceiving and moving as live-digital. Live-digital as a concept proposes that a dancer can engage, at a fundamental level, with the changing characteristics of a mediatised environment in order to explore innovation and invention in her movement making. This is based on a specific reading of Erin Manning and Jean-Luc Nancy's philosophical concepts of individuation and singularity and is derived from my engagement with such

concepts as an implicit part of my movement practice within the studio setting. Importantly, it has been through an engagement with philosophy that I have been able to open-up the choreographic processes for moving with simultaneous projections of self. My invention of the term live-digital therefore helped me to bring together a cluster of concerns, which have been inspired through philosophical thinking, and which were derived through embodied practice.

In chapter 1, I set the context for such an enquiry, which leads to the two main questions of the thesis:

1. How can dance within media-rich environments avoid the trap of the dominance of the digital?

And thus, through the exploration of a non-binary assemblage of movement, sound and image:

2. In what ways can a dancer's perceptual and interpretative decision-making process transform when she is immersed in an environment with simultaneous projections of self?

Having established the two main questions, I then explore what I consider problematic, which leads to a discussion of live-digital dancing. To do this the thesis draws upon a particular reading of process philosophy, in the work of Erin Manning most specifically, as well as exploring theoretical concepts that challenge and expose some of the difficulties of moving in such situations, for example I draw upon Nathaniel Stern's discussion of embodiment (2013), along with Philip Auslander's concept of liveness (2005, 2008, 2012). This establishes the context for the presented works of the thesis.

What follows in chapter 2 is a detailed discussion of the artistic and philosophical frameworks for practice, which help to situate the dance pieces that I created, and develops further, the theories most useful for this study. Chapter 3 charts a course across a 6-year period of embodied research, which crystalized into 3 works: *Shift* (2010-11), *Betwixt & Between,* (2012-13) and *Modulation_one* (2013-14). *Shift* represents the initial stages of this exploration

whereby a series of simple, accumulative loops of real-time projected images were constructed within the chosen software, Isadora[1]. In order to progress with such a study, it was important initially to establish a process whereby the dancer could initially recognize a simple cause and effect scenario, which consequently developed into a methodology for de-coupling the movements of the dancers directly to a technological effect. Once the dancers became adept at recognizing and anticipating the technology, initially in *Shift*, and progressively through their experiences of *Betwixt & Between* and *Modulation_one*, they were able to use alternative methods for generating movements that were inspired and transformed through the digital. By remaining open, and by initiating their movement improvisations with "sensing bodies" (Manning 2007, 2009, 2013) in mind, the dancers found that their normative processes for making movements became disrupted. This disruption resulted in a re-imagining of the experience of gravity, force and rhythm, which changed not only how the dancers moved, but also how and why they felt compelled to move. All three works are discussed in detail and each is presented in the context of a continuing and emerging practice. As such, each discussion explores different facets of live-digital dancing.

I conclude in chapter 4 by re-considering the works by way of a concept for live-digital, which takes effect as a re-imagining of the process of experiencing bodies, images, and sounds as part of the evolving and dynamic encounter. By engaging head-on with the difficulty of live bodies being inferior to digital projection, I propose that perceiving bodies (plural), as part of an emerging encounter can indeed move beyond a dualistic and hierarchical relationship. Live-digital as a concept, which is evidenced in the following case study offers further empirical and experiential insight to the field. Before I consider the problematic relationships between bodies and technologies, I will firstly set the context for the submitted works.

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[1] Isadora is a graphic programming environment providing interactive control over digital media. See troikatronix.com.

# Chapter 1

# Bodies and technologies:

# A choreographic enquiry

**1. Situating the works: Contextual analysis**

In this chapter, I set out the main choreographic intention and establish the foundations for analyzing a dualistic relationship between bodies and technologies. My analysis is based on the use of a number of key conceptual and philosophical concerns that were established as part of the studio practice. These concerns helped to frame our movement improvisations and provided a context for exploring the problematic relationship of bodies and technology. Through an engagement with particular philosophical ideas, the dance pieces that I created have therefore intersected and been enlightened by ideas from activist philosophy (Manning 2007, Massumi 2002, Portanova 2013 et al). In particular notions of emergence, and, most specifically, a concept of individuation (Manning 2007, 2009, 2013), have became instructive of a methodology for re-thinking the act of moving, or, as Salazar Sutil and Popat describe as a re-characterization of "digital movement" (2015:1). Likewise, Nancy's discussion of the signifying body (2008), and a concept of Being-with (2000), has opened up a process for conceiving of bodies beyond their conception as a subjective, separate entity. In turn, this has also opened up the potential for the digital to become part and parcel of an overall characteristic, which is in "coexistence" (Nancy 2000:3). I begin by scoping the field of digital performance, which leads to a consideration of the key conceptual concerns.

This thesis explores dance and projection. Whilst the potential for integrating new media technologies into live performance works is not a new concept, in reality the very nature of attempting to combine dance and projection has not been so easy to achieve. My own experiences of moving in media-rich environments provided me with a practical basis from which to start my analysis. In order to support my embodied understanding as a dancer the initial period of research focused on scholarly and artistic material, and concentrated on performance practices, that in various ways embed forms of digital or technological practices into performance making. Leading scholars in the field, such as Johannes Birringer, have noted the "gradual embedding of media and

digital computation into performance. Or, vice versa, performance (becoming) embedded in an expanding range of media arts and intermedial composition processes which challenge assumptions about assemblages of forms and relations" (2012:1). There is now a substantial collection of work that encompasses screen-based installation art, performance and interactive media and applications of technology in time-based theatre arts (see Dixon's seminal text *Digital performance* 2007 for example), along with an expanding repertoire of dance companies both in the UK and abroad (such as AΦE, Aakash Odedra, Chunky Move, Klaus Obermaier, Motion House Dance Theatre, Phoenix Dance Theatre, DV8, Troika Ranch to name but a few) making more and more use of new media technologies. Yet, precedents in the field indicate that there is still a lack of rigorous engagement with how technology offers new forms and relations from the perspective of the dance performer / maker.

In order to distinguish those theories and practices most useful, it has been important to illustrate what I understand as being the key features of digital dance performance. Steve Dixon definition is useful, he states,

> We define the term 'digital performance' broadly to include all performance works where computer technologies play a *key* role rather than a subsidiary one in content, techniques, aesthetics, or delivery forms. This includes live theatre, dance, and performance art that incorporates projections that have been digitally created or manipulated; robotic and virtual reality performances; installations and theatrical works that use computer sensing/activating equipment or telematic techniques; and performative works and activities that are accessed through the computer screen, including cybertheatre events, MUDs, MOOs, and virtual worlds, computer games, CD-ROMs, and performative net.art works. (2007:3)

The scope is therefore wide-ranging, yet it is worth noting Dixon's emphasis on technology playing a *key* role. This excludes performances that may use technological apparatus, but which do not necessarily employ computer technologies as an integral creative element. This helps to define the use of technology as essential. Even though the range of practices and applications of technology in performance is various, I have been drawn to those discussions that examine how experience and embodiment in particular, have become

transformed through technological engagement. How the digital might penetrate the processes for making movement, as a *key* creative agent, has been a primary concern.

One of the defining features of digital performance is the possibility to combine live theatre practices (i.e. the management of performers, actors, dancers) with digital processing tools (film, video, projection etc.), which also includes the use of virtual[2] and/or augmented reality. The contention that arises from such combinations is how technology has directly impacted the ways in which we view, absorb and understand performance. Sita Popat's discussion in her introductory chapter in *Performance perspectives: A critical introduction* (Popat 2011) provides a useful overview. In this she concentrates "specifically on digital and new media technologies that affect our perceptions of presence and communication, changing or extending them through encounters in/with virtual, augmented and mixed realities" (2011:115). What is striking in her discussion is how engaging with technological environments, and in particular with virtual environments, affords us further opportunities for reflecting on our "sense of being present in another place…" (Wood 2011:121). Similarly, my own investment for this study comes from a desire to explore the changed and changing qualities of our experiences within technologized environments, and in particular with how a dancer's "sense of being present" (ibid.) can be transformed through technological appreciation.

In order to take the first steps towards a transformed process, it was therefore important to recognise the changed ways in which we not only view and access, but also how we ultimately understand performance. What this implies is that we not only access art differently in our current times, but that

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[2] Virtual in this context refers to a technologized form of representation, via a camera or through an on-line portal for example, and in relation to animated virtual figures such as avatars. For an alternative view of the virtual, please see Brian Massumi's definition in terms of perception and experience. He states, "For the present is lost with the missing half second, passing too quickly to be perceived… This requires a reworking of how we think about the body, something that happens too quickly to have happened, actually is *virtual*" (2002:30). My own analysis is more concerned with Massumi's concept of the virtual.

our technological era asks of us more fundamental questions in terms of how we identify and understand our own artistic processes. Popat also discusses the potential for engaging outside of the normal constructs of theatre, and considers how notions such as the performer/audience relationship for example, are also changing the ways in which experience art works. As such, technology has inspired a myriad of possible new modalities. Recognising that my own work sits within such a context, and more explicitly, by attempting to understand my own experiences of moving in media-rich environments from this position, has allowed me to offer a further analysis of the ways in which technology can meaningfully advance the embodied practices of making movement.

Tracy Warr, in her chapter titled *The body in your lap* (2012), offers a further useful description, she says,

> Digital technologies have been a key influence in bringing the embodied consciousness and metaphysics of the body back into focus in contemporary art. Technology is often discussed as if it is something new, when it is of course as old as flint hammers (2012:22).

Interesting to note here is the idea that technology, which as Warr mentions is often given the status of being the new and innovative addition to contemporary art, serves as a metaphor for re-focusing us back to the body. Paradoxically, it appears that the introduction of technology, in some senses, has made us question the very ontology of performance. The main thrust of the conversations surrounding new media technologies and performance, tend towards the apparent tensions between the seemingly separated worlds of the live and the mediated. This is predicated on the view that technology, because of its pervasive cultural qualities, tends to overpower and become more dominate than live theatre practices. This is reinforced by scholar Philip Auslander in his seminal text, *Liveness: Performance in a mediatized culture* (2008). He states,

> The notion that, working together, stage and screen can convey a fuller sense of what it is to be human than either can alone is premised on the assumption of their working together as complementary equals, an assumption that still underlies much performance work that incorporates both live and screened bodies. (2008:40)

The cultural dominance of the digital, as signified by Auslander in the book, is therefore significant and as such has framed many of the discussions surrounding the integration of technology into time-based performance art, particularly in the last decade. In response, scholars and artists have been engaged in various ways with this dilemma. Most significantly Theatre Director Herbert Blau and Scholar Peggy Phelan have been two noted critics of Auslander's position[3], both of who critique performance as a mode of reproduction and commodification through the image (Blau 1987, Phelan 1993). Put simply, on the one hand there are advocates for the beneficial influence technology is having on performance, in opposition to those who argue that technology's presence can alienate us from some of the fundamental characteristics of live performance. These polarisations, although clearly nuanced, provide scaffold for the works of this study.

From a choreographic point of view the centrality of the body, which places embodiment and experience at the core, meant that I tended to gravitate to those discussions that challenged the apparent dominance of the digital. To do this I began with Auslander's theory of liveness. His original critique was based on the cultural phenomenon of a live event versus a live recording of that same event, in which he concluded that the cultural dominance of the digital far outweighs the historical assertion that live performance is seen to be more authentic. Auslander's contention was that we have become estranged from what live actually means. He discusses in the first two chapters of his book that we are increasingly drawn, if not even more enamoured, by the representation of such events as they become manifest digitally. As a result he posits that we should look to accept a screen-based presence as essentially live. This is, according to

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[3] See Steve Dixon's discussion of Chatterbots in his chapter "*Theatre" in Cyberspace* (2007), which provides a succinct synopsis. He states, "The chatterbot may simulate human agency in typographical form, but not in physical, mortal form, which despite Auslander's rather selective reading is the real point behind Blau and Phelan's definitions of the particular 'morality' of the live performance experience" (2007:494). Whilst this study is not concerned with cyberspace per se, the on-going questions relating to presence and what is live, or indeed real in this context, has been helpful for clarifying the importance for the dancer's sense of agency and embodiment whilst moving in digitally enhanced environments.

Auslander, because we live in a world already saturated by technology. This poses a potential problem for those art practices, which rely on the engagement and connection, which is assumed via a face-to-face interaction in a live context, with an audience.

Since his original text a number of scholars have extended the somewhat binary discussions between the live verses the real (for example see Broadhurst 2007, Benford and Giannachi 2011). This includes Auslander himself.  Reflecting on his original assertions he states in an article titled *Digital liveness: A historico-philosophical perspective* (2012),

> The default definition of live performance is that it is the kind of performance in which the performers and the audience are both physically and temporally co-present to one another. But over time, we have come to use the word 'live' to describe performance situations that do not meet these basic conditions. (2012:5)

Here Auslander is referring to on-line communications and the possibility to connect, in real-time, remotely with each other. Interfaces like the Internet, and mobile technologies thus provide alternative platforms for engaging with an audience beyond the more traditional face-to-face scenarios Auslander discussed in his earlier writing. This is also suggestive of the speed at which technology is changing and developing, and signals the fluidity of the field (again see Popat (2011) for a discussion of the positive attributes provided by new technologies).

In summary, the omnipresence of technology in our current times has continued to ignite debates surrounding the issues of what is or is not live, and therefore how technology both affords and challenges our cultural assumptions of what performance is. Moreover, what has arisen is the importance, not of either live versus digital, but of a more nuanced approach to the question, which has more to do with our perception. As Auslander mentions,

> We do not perceive interactive technologies as live because they respond to us in real time, as my earlier statement suggested. Rather, we perceive real-time response in some cases as a demand that concretizes a claim to liveness, a claim that we, the audience, must accept as binding upon us in order for it to be fulfilled. (2012:10)

What is significant here is the recognition that what we understand, in terms of our embodied experiences, can be expressed beyond such dualities. A claim to liveness thus removes the harsh distinction between the two, and opens up the debate towards perception and experience. The debates have therefore been usefully turned towards an examination of how we perceive a diverse range of experiences that are enlivened through new media.

What constitutes liveness has therefore underpinned my own investigations. Given that this study began from the position of a dancer moving in such situations, the challenges of making work within such a framework became demonstrable. In order to help explore this more fully, I have also found it useful to engage with related materials that both support and challenge this viewpoint. For example, I was interested in Patrice Pavis' critique of theatre practices, which encompass technology. He states,

> When certain directors escape into new technology… they no longer consider themselves as the central subject, artist or aesthetic subject, but simply as an organiser of functioning… But it is necessary to pick out, amongst the machines, videos, technology and other computers, some fragments of body… (2003:191).

Pavis is clearly critiquing the relevance and impact technology has on the effectual qualities of a live theatre performance. His analysis suggests that artists who use technology tend to become distracted by the functional components of organising machines and computers rather than dealing with the business of making meaning through theatre. Matthew Causey's notion that performance is always integrated into, and being modified by, technology due to its pervasion in our culture is also useful. Causey states, "the only accessible real in technoculture is technology" (2006:34), and yet he also states, "I hesitate at the lack of flesh in virtual performance" (1999:94). This serves to illustrate the apparent tensions that exist and sets a tone for the works explored in chapter 3.

Such discourses help to provide a foundation, and supports the need for a greater attention to the forms and relations we associate with our changing

experiences of technology (Birringer 2012:1). Likewise Susan Broadhurst mentions, "It is my belief that tensions exist within the spaces created by this interface of body and technology" (2007:1). In accordance with Broadhurst, it is my view that technology, besides being useful as a tool, can have a transformative affect on movement making, but only if the digital becomes part and parcel of the creative process. This is reinforced further by Susan Broadhurst and Josephine Machon, who state in their introduction to *Performance and technology: Practices of virtual embodiment and interactivity* (2011), "As such, we identify certain features that are quintessential to these practices. One such prominent feature is the absolute centrality of the digital…" (2011:xvii). Thus, my own understanding has been grounded by these on-going dialogues, which consider the centrality of the digital. Moreover, the integration of technology as an implicit element within the creative process has not only been an integral concern, it has led me to consider the perceptual and experiential consequences of moving in such situations. It is the latter, which this study has come to appreciate the most.

This leads to a number of further considerations for the thesis, which stem from the apparent separation between mediums. Discourses that have attempted to explore this divide include a concept of intermediality[4], whereby each respective discipline becomes altered though a direct connection with another medium (Bay-Cheng et al 2010). Intermediality defines a process whereby different disciplines (i.e. dance, music, theatre, performance etc.) become changed via an interdisciplinary and collaborative approach to making work. The following definition is useful, "Intermediality in performance can be understood as a mode of performativity… indeed, [it is] very much a matter of redefining our senses and resensibilising our perception through bodily encounters with (digital) technologies" (Bay-Cheng et al 2010:27). Such a view has been

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[4] Andy Lavender's description is useful here. He states, "Intermedial work participates in – is structured by – such fusions, hybridities and interrelations, not only of different media, but also of discrete phenomena" (2010). Intermediality, as a term, arose from a variety of disciplines and approaches to be mutually effective, not only in terms of the creative outputs developed, but also in terms of offering alternative ways to view and appreciate the synthesis of a range of practices.

particularly instructive for my own engagement in the creative process. However, the idea of fusing practices falls short for my own study for the reason that my creative intentions have been centred on the potential for inspiring a perceptual transformation whilst moving and perceiving digital dance performance as part of an emerging encounter. This encounter relies on the dancers transcending notions of what constitutes a body in such situations (please see my discussion of *The body and media* in section 2 below). By this I am referring to the ideological shifts that have taken place for the dancers in my own work in terms of their sense of self and being, as they have grappled with the complexities of moving in such situations. As Liesbeth Groot Nibbelink and Sigrid Merx state in their chapter, *Presence and perception: Analysing intermediality in performance*,

> The clash between digitally influenced perceptions and embodied presence manifests itself particularly as a *disturbance* of the senses and results in a *blurring* of realities. Theatre makers often deploy digital media in live performance in order to disturb clear-cut perceptual distinctions between fictional and real, physical and virtual, live and pre-recorded and so on (2010:218).

This builds on the earlier discussion of live versus mediated, and highlights an interesting development in terms of how artists are, on the one hand attempting to make a distinction between the somewhat disturbing results of blurring live and mediated material, whilst on the other hand, trying to make a case for such a blurring in terms of our senses and experiences. In essence, the idea that different forms and mediums can be influenced and therefore changed through their engagement with each other resonates with the intentions of this study. Yet, even though these ideas echo with some of my own concerns, what became clear was that such dialogues remained largely concerned with the performer's body as something that is ultimately separate from technology. What I realised through my reading about intermediality was that even though each respective discipline could influence the other, my pursuit for an experiential transference required an alternative reading of the fundamental assumptions of what constitutes the forms and relations, to return to Birringer, of each media. In recognising that my works were more to do with phenomenological expansion I

thus sought to find contextual materials that helped to elicit how such practices might be transformed outside of their own constituent terms. This is what ultimately led me to process philosophy, which I will discuss shortly. Accordingly, whilst the possibility for disturbing the perceptual distinctions between such binaries, fiction versus real, physical versus virtual, live versus recorded etcetera, were informative, such ideas did not challenge the fundamental building blocks for making movement. In short, even though intermediality makes a case for a greater fusion, it still maintains the distinction between media and thus continues to present bodies and technologies as ultimately separate.

For that reason this study engages with the emergent and transformed (or continually transforming) nature of moving amidst live and digital materiality. My analysis therefore tended towards those scholars and artists who explore the impact technology has had on the very foundation of creativity and bodily experience (e.g. Birringer 2012, Kozel 2007, Lycouris 2009, Rubidge 2002, Stoppiello 2009). Many of these perspectives have been enlightened through philosophical analysis, which supports ideas of the body in a digital age (Broadhurst 2007, Gill 2002). Clarifying the value of concepts, which destabilize fixed ideas relating to the characteristics of live and digital materiality, has led me to the main themes for this study. In summary, I have engaged most usefully with theories of liveness (Auslander 2008), presence (Burt 2004, Lepecki 2004), temporality (Hansen 2011, Sobchack 2004), and significantly with ideas that surround the body and perception (Fenemore 2011, Manning 2007, 2009, 2013, Melrose 2011, Portanova 2009, 2013, Reynolds 2012). In particular, philosophical ideas relating to how an individual might perceive and understand this shifting landscape have been key to my own reading of the presented works. Key texts by Erin Manning (2007,2009,2013) and Jean-Luc Nancy (2000, 2008) provide vital reflections of the body and what constitutes experience. Manning and Nancy are used most explicitly, and underpin the thesis most significantly.

Other key texts, which appear in my analysis, include Portanova's *Thinking movement and the creation of movement through numbers* (2006) and Hagendoorn's *Emergent patterns in dance improvisation and choreography* (2002), both of whom discuss the complexities of choreographic processes through a mathematical lens. Hagendoorn explores the dancer's behaviour by applying complexity theory to the patterning and generation of motion in her choreographies, in which she employs video technologies to observe the complex relationships between dancers. Meaningfully she discusses,

> A choreography is a set of instructions for the organization and reconfiguration of one or several bodies in space and time. In practice there is always a 'residual term' ε, in the sense of performance = choreography + ε, which is not covered by the explicit instructions and which is left to the dancer(s) to fill in (2002:1).

What I found particularly compelling in her analysis was the pursuit of the ε in choreography, which provides an intriguing method for analysing the dancer's behaviour in response to complex patterning. My understanding of what ε represents is in many ways similar to the changed characteristics of moving with my digital self (please see discussion of *Shift* in chapter 3). In my own creative endeavours I too have been excited by the potential for the "spontaneous synchronization" (Hagendoorn 2002:1) of materials as they fortuitously unite (Hagendoorn discusses this in terms of complexity theory and the flocking of birds). Furthermore, her description of our tendency to search for patterns has been particularly useful for my analysis of the emerging materiality of bodies and images (see my discussion of *Betwixt and Between* for a more detailed analysis).

Portanova's book *Moving without a body* (2013), which develops from the above article, has also been key for critiquing the use of digital technologies explicitly in dance practice. Portanova seeks to evaluate the predominant use of technology for its archival qualities and its usage as a preservation device. In so doing, Portanova's discussion moves beyond the problems of digital disembodiment; a concern that resounds across much of the literature particularly in terms of our engagement in virtual worlds, and makes a case for

an abstracted notion of moving which is constituted as a mathematical or numerical notion through an "intuitive logic of the cut" (2013:49). She states in relation to movement, "In many contemporary explorative and creative projects, the main problematic idea associated with digital technology remains how to analyse and reproduce the external shape, as well as the internal nature, of a gesture" (2013:12-13). She continues by offering the following comparison, "Relegated to the double status of tool for physical capture and mental comprehension, technology is confronted with the same impossible task: how to make stable, understandable, or cognizable something that is not" (2013:13). Rather than concentrating on the loss of what digital computation does in terms of disconnecting, or better said disembodying us from our movements, she uses an idea of the logic of the cut to argue that digital computation is a mirror for the abstractive and disconnected qualities of experience proper. Rather than trying to appease the apparent separation between mapping gestures and providing some form of accuracy through computation, she eliminates such binaries by arguing that, put simply, movement and coding is part and parcel of a complex nexus which is part and parcel of the abstracted facets of thought. This provides a highly significant development from the binaries discussed earlier in this chapter. Extending the binaries of what is or is not live has therefore proven highly productive for my own analysis of performing. As such, the exploration of the thoughts of the works I have created, which echoes Portanova's conceptual premise, has led me to consider the aesthetic qualities of bodies and technologies. Broadhurst supports this further,

> It is my belief that technology's most important contribution to art is the enhancement and reconfiguration of an aesthetic creative potential which consists of interacting with and reacting to a physical body, not an abandonment of that body (2011:149).

Thus, rather than abandoning the body through an enquiry which places technology as a potential foe, I have found myself searching for ways to create artistic and poetic opportunities for crafting materials, irrespective of whether they are live or not.

Other supporting material by scholars discussing screen-based media (film, video, installation) such as Vivian Sobchack (2004) and Mark Hansen (2011) who also examine philosophical ideas of embodiment in aural and filmic works, provides further context for related notions of space and temporality, which also underpin the works of this thesis. Similarly, Sita Popat's discussion of aesthetic movement in her chapter titled, *Moving, withdrawing and the uncanny* (2015) has also been particularly helpful in defining the qualities of my own experiences. In her discussion she examines Martin Heidegger's criticism of technology's influence on human relationships and the dangers it poses for distancing humans. Whilst my own work draws on an alternative framework through activist philosophical concepts, Popat's philosophical interpretation of the processes of negotiating a technological interface has also helped me to determine the conceptual threads in my own work.  Popat's analysis of the uncanny has been particularly informative.

Having established that this work is invested in the embodied experiences and nuanced complexities of moving in digitally rich environments, the next sections seeks to further unpick the main choreographic concerns by exploring such ideas though a philosophical lens. This has helped to deepen the purposes of my enquiry.

**2. Articulating the main choreographic concern: The body and media**

Having looked at some of the main issues surrounding bodies and technologies, this section explores in more detail ideas of embodiment, which is considered in the context of moving in digital environments.

In *Interactive art and embodiment: The implicit body as performance* (2013), Nathaniel Stern highlights some of the difficulties encountered between interactive media and embodiment. His main premise is that, whilst a proliferation of digital tools have made it possible to explore further opportunities for participating in art practice, particularly in terms of interactive art[5], he nonetheless makes a strong case for positioning the body as a central concern over and above technological advances. According to Stern,

> To truly appreciate and study what new media do, we must first acknowledge that vision is more than an isolated sense, that data has materiality, that bodies are always present with the machine, and that technology and interactivity are not inherently and always good… We are always more than that which a computer detects. We should, rather, approach what interactive art *does* – and what we do – when it frames our moving-thinking-feeling… I pose that we forget technology and remember the body. *Re-member*: Embody again. (2013:6)

While Stern's focus here is specific to interactive art, whereby the participation and experience of the viewer is the focus, his plea for a return to the body, to a "*Re-member(ing)*" (ibid.) of the constantly shifting qualities of our interactions with such environments, was useful for introducing the priorities for my choreographic enquiry. By adopting Stern's proposition that a return to the body is essential for understanding our relationships to media more widely, which echoes with many of the discourses already discussed, it has been useful to remember that, "We are always more than that which a computer detects" (ibid.). Such a statement provided a useful jettison from which to begin my

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[5] Stern defines interactive art "as including works of electronic and digital art that features: various forms of sensors or cameras for input; computers, microcontrollers, simple electronic circuits, or other digital or analogical terminals for processing; and any form of sensory output – audiovisual, tactile, olfactory, mechanical, or otherwise; where all are placed together in a system that responds to the embodied participation of viewers, either in real-time, and/or over lengths of time" (2013: 6).

practical explorations. Moreover, this statement also gave rise to a fundamental question for the work; that of what constitutes a body. As such, this became an overarching mantra for the work. Meaningfully this also built upon Hagendoorn's notion of ε, and helped the dancers in my work to address what Stern describes above, "that data has materiality, that bodies are always present with the machine" (ibid.).

To help highlight the significance of this, and by way of a more detailed analysis of materiality, Erin Manning's description of technogenesis, which she discusses in her article *Prosthetics making sense: Dancing the technogenetic body* (2006), also served as a useful metaphor for placing greater emphasis on the embodied experience of the dancer. Manning describes technogenesis as the potential to experience movement's quality and affect beyond its representational properties within digitally enhanced performance environments. She states,

> In a technogenetic event, more than displacement or representation must be perceived. What must also be felt — by the dancer first and foremost, but also by those participating in the performance as spectators — are the microperceptions through which the displacement is activated. (2006:5).

What she suggests is that dance and technology performances can tend to render the dancer as relatively inactive, in so far as she is only required to activate visual and/or aural data. This is because she is bound by the software's parameters for generating visual and or aural effects in response to her movements. As a result, what the dancer, and an audience experiences is reduced because the performance is concentrated on how the dancer's movements might usefully service a particular technological or visual/aural effect. This is besides focusing on the quality, or otherwise said the affective experience or microperceptions of her movements. She also states,

> The challenge is how to keep the participant's attention on the quality of the movement. In a situation where the dance modulates sound and image in real time based on extrinsic movements of a dancing body, attention shifts from the qualitative to the quantitative. Because of the system's prosthetic apparatus and its emphasis on subjecting the dancing body to its parameters, the participant's attention tends to be drawn to the workings

of the system rather than to the movement's qualities. (Manning 2006:1)

Building on a philosophy of Transduction[6], she explores the potential for transforming beyond what she describes as a pre-constituted body or a "docile body" (ibid.). She does this by exploring how to move away from technological mapping. She discusses how such works, which are intended to "foreground previously untapped dimensions to the moving body" (2006:2) only seem to reinforce the dominance of the digital, because the dancer's body is merely representational and useful as an instrument to trigger technological data and effects. Johannes Birringer, who discusses the connection between digital processing and the capture of movement and its transfer into data, supports this further. In his chapter titled *Gestural materialities and the worn dispositive* (2015) he states,

> I wonder whether the performers worried about controllers and control systems. Why do we hear so little about this matter? A question might be posed to a dancer, namely whether she felt her gestures (as data) transmuted something in the audiovisual/kinematic/choreosonic environment, or whether she was muted? (2015:162).

His question of the dancer becoming muted is precisely what my work aimed to explore. He goes on to discuss the potential effects and connections between performers and technologically-modified or enhanced environments across a wide ranch of works, from historical performances such as Robert Rauschenberg's *Open Score* in 1966, to Chunky Move's *Glow* (2006). In his examination of a progression of works that variously embed and employ technology to enhance or extend the performances visual/aural possibilities, he also seems to be making a case for a return to the body, as has been described by Stern and Manning above. He does this by confronting the processes of gestural mapping and materiality through a concept of the dispositif. He concludes his discussion by saying,

> The couplings to system controllers – with kinect cameras now becoming the latest fashion – can be considered suspect if mapping operations are not

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[6] Please see Simon Mill's description of Transduction, which he discusses as "the concept of transduction is developed as the axiomatic and ontogenetic account of how form arises" (2016:47).

questioned or if sensory affect is taken for granted and not probed in regard to meaning, form and pattern of visual, kinetic, tactile or auditory awareness generated by the 'reactor' [Yoko Ando's term] (2015:180).

What is significant for this study is his focus, and endorsement for, the complex and un-chartable sensibilities of the dancer. His final sentence is noteworthy, "Fortunately, the system does not know what pattern of thought, awareness or emotion underlies the dancer's movement" (2015:182).

Consequently, rather than dealing with technology as an additional element (or in Manning's terms as prosthesis), the focus for my choreographic enquiry was how best to destabilize the hierarchical relationships between dancer and technology, which could be described as an, "affective transformation [which] depends on evolution in the machinic system such that both bodies and technological systems are altered. Transduction: the process develops according to a dynamic not of interactivity but of relation" (Manning 2006:2). What Manning proposes here is that any process for making movement needs to account for invention and transformation beyond being effective as a trigger for the technology. In the context of digital dance performance, I understand Transduction to be the potential for experiencing alternative manifestations of live and digital materials, which emerge as part of a non-binary assemblage of bodies and technologies. As Manning suggests the challenge for choreographers/dancers is how to move beyond the normal strictures of such a hierarchical scenario. Moreover, in the context of this study, not only do choreographers and dancers have to find ways to move beyond such limits, but they must also find new ways to re-imagine their own position within such a process. Particularly given that, as both Stern, Manning and Birringer have suggested, challenging some of the dominant features of digital performance means that we must re-considering the dancer's experience and thus our embodied encounters with technology.

Both Stern and Manning respectively propose a body as something which extends beyond a more normative relationship with technology, described in

their own terms as a "moving-thinking-feeling" (Stern 2013:6) body, or as a "sensing body in movement" (Manning 2007, 2009, 2013). In these terms, any exploration between bodies and technologies, which seeks to engage with digital dance performance in a more qualitative and not quantitative manner, therefore requires a different kind of process for moving, a process that is characterized by change. This requires a significant shift in choreographic thinking. If one is to explore a body's relation to technology as it becomes typified through a process of transformation, then additional strategies and methods which allow for fluctuation and transformation within the choreographic process is therefore what is at stake. Thus, the works presented in this thesis provide the dancer with a challenge – how to encounter technology not as prosthesis but as a characteristic and qualitative function of an unfolding exchange?

By challenging such binaries, from a choreographic position, I have sought to open up the normative methods and approaches for making movement in relation to media. This has been besides a process whereby dancing effectively services the technology, which in my experience is still currently the case in many digital dance performances. What has transpired through such an investigation is the possibility for a more porous and transformative process, a process that is in emergence with technology; "For technogenesis to occur, the dance must surprise, moving beyond a closed-circuit interactivity toward relational eventness" (2006:2). Manning's emphasis on relation and experience, beyond a concept of interactivity, has been particularly instrumental in re-defining the choreographic processes for this study. My reading of Manning in particular has helped me to engage with the potential for conceiving of both movement and the digital as porous, or as live-digital in nature, which has resulted in particular methods for constructing and then exploring movement. The choreographic enquiry is therefore characterized through, what Bojana Cvejić describes as choreographing problems (2015b), which has helped to establish a transformative process for moving.

## 3. The problematic medium/ digital dance

Before exploring a concept for live-digital dancing in more detail, I firstly examine what I understand as being potentially problematic when combining live dance performance and digital media. To begin with, I will briefly consider the problematic medium/genre primarily from the perspective of generating movement material in syncopation with technological effects, which leads to the problem of the dominance of the digital. This then leads to a discussion of a concept for live-digital dancing, which represents the main contribution to knowledge. I discuss each of these areas briefly in order to set out the main purpose of the thesis (each area is then discussed in more detail in subsequent sections).

In my experience, the majority of digital dance performance brings together dance and technology in such a way as to forefront the technology as the new and exciting addition to the creative palette. In many of the dance pieces I have seen: Wayne McGregor's *Atomos* 2016, Akram Khan's *Chotto Desh* 2015, Aakash Odedra's *Murmur* 2015, Tom Dale's *Refugees of the septic heart* 2014, Motionhouse's *Scattered* 2009, amongst others, the possibilities for enlivening the dance is predominantly achieved through technological enhancement. This is done either by enhancing the dance visually via post-production effects (i.e. the addition of mediated images or the extension of a dancer's movement through interactive lighting/animation/sound etc.), or as part of an interactive response whereby the movements of the dancers affect a change through sensor technologies (Chunky Move's *Glow* 2006, or Klaus Obermaier's *Apparition* 2004 for example). In this way, any invention or potential innovation comes mainly from a visual or technological enhancement as part of the overall mise-en-scène of the dance. Moreover, the main premise for the choreography in these types of works is to present movement, which has been finely rehearsed and subsequently designed to work in tandem with any visual and/or aural effects. Hence, once the movement content has been created and the dance completed, the technology is then used to enhance and enliven the overall narrative and/or

visual appearance of this content. As such, the dancer's role is centered on his/her ability to syncopate their movements in tandem with the technological effects, or to move in accordance with the changed and/or changing technological mise-en-scène, which in and of itself can be extremely enriching and engaging.

Yet, whilst the dance, and the dancing is enhanced, particularly in terms of the additional visual possibilities media offer, what a dancer *does* is not necessarily changed or transformed characteristically. That is not to say that dancers cannot be engaged or inspired by such environments as they perform highly complex and sometimes intricate movement phrases alongside technology, to the contrary. However, what I suggest is that the fundamental building blocks of movement making are not principally altered when technology is used in this way. I do not wish to critique such dances, as they are designed to work as such. However, I wish to use such choreographies as a point of departure for exploring how technology might affect some kind of change or transformation in terms of the dancer's movement making choices and decisions, in the moment of performance. In my own work, I was keen to explore a fresh perceptual experience of moving in such situations. To do this I focused on how a dancer might move beyond syncopating her movements with technology towards something far more transformative in terms of *what* she does and *why* she does it.

In this regard, many artists have been engaged in positive ways with the interesting dilemma of working with both live and digital bodies. Troika Ranch, Palindrome, Carol Brown, and Susan Kozel amongst others, in varying ways focus on the interface and potential transformation afforded by technology. They provide valuable exemplars of how technological thinking can have a positive effect on the actuality of movement. Accordingly, my own work is aligned to this manner of choreographic thinking, whereby the use of technology is principally used to explore further opportunities for movement invention. Susan Broadhurst

reinforces this when she states, some "digital practices indicate an increased potentiality for new artistic creativity rather than emptiness… they indicate a redefinition of 'meaning'" (2007:15). In accordance with Broadhurst, and in commonality with the artists above, my work is also suggesting that any "redefinition of 'meaning'" must essentially come from the dancer's ability to perceive a "new artistic creativity" (ibid.), or in Stern's terms, by exploring what she does and why she does it via new encounters with technology.

## 4. The dominance of the digital

In my search for new encounters, and by trying to explore a redefinition of meaning for the interaction of live and digital bodies, one of the overriding difficulties has been the potential lure and seduction of technology. As discussed in chapter 1, Philip Auslander has described this very tension. It is worth briefly returning to his contention. He stated,

> Different media therefore do not interact with one another as equals. I said in the book that, if you have live bodies and projections on the same stage, most people are going to look at the projections. This is partly a perceptual matter: the projected images are usually larger and brighter and therefore attract more attention. But it also has to do with the cultural dominance of the screened image at this historical moment. What I mean when I said that 'Dance + Virtual = Virtual' is that, because video and digital media currently possess greater cultural presence than live bodies, they become the framing elements of any performance that incorporates both. The live elements will be perceived through that frame – they will be seen in terms of the video or digital media, not the other way around. (2005:1)

If we are to accept this view, and by way of considering such difficulties from the perspective of the dancer and not just the audience, her position in the work does indeed become tricky because she is seen (or not *seen* as the case may be), as potentially inferior to the virtual/digital body. Moreover, this makes it increasingly challenging to perform because whatever she does is governed and then essentially framed by the dominance of the digital. As discussed previously, combining live dance with digital projection is potentially problematic because the temptation to view the technological effects far outweighs the demands of attending to a live body. This is compounded by the fact that the dancer, too, can be drawn towards the screen[7]. My own discomfort at being drawn towards the screen, away from the dancer whose presence I feel ashamed not to be attending to, points towards Stern's plea where he states, "we must forget technology and

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[7] My experiences of watching dancers performing whilst looking at their screened presence, or a digital presence, has left me feeling isolated from the dance. Hence, not only are the audience diverted away from the dancer, but that she, herself, by being drawn to the screen, also becomes somehow distracted from the dancing. I wish to state that this is a somewhat reductive view, and the act of engaging in this study has revealed that the complexities of engaging in such situations can be understood beyond this dualistic viewpoint. Nonetheless, it is worth recognizing that this is where my study began.

rather study the quality of our movements with them, and the techniques we rehearse in and around them" (2013:21). What Stern suggests here is that rather than concentrating our attention on the causal links between viewing and responding to technology, we should concentrate our awareness on the qualities of the experience it evokes. This is besides the visual effects and lure of the technology, which confers with Manning also. Moreover, this supports the idea that because the dancing is constructed within its normative codes and principles, i.e. movement material is firstly designed and then prepared for performance, which is then syncopated with digital materials, it falls into the trap of the dominance of the digital for the reason that it remains within its own normative and constitutive boundaries.

Accordingly, if we are to suppose that the digital in such scenarios possess greater presence in our current times, then surely we must find new ways to re-engage with the how and why of our interaction with it, or as Stern mentions, it should otherwise be about "the encounter it creates", and "the quality of our movements with them" (ibid.). Consequently, any work which employs technology as part of its meaning must therefore "*Re-member"* (2013: 6) the body. This is hugely significant if we project such dominance towards the dancer who is not only responding to, but also moving in, such environments. Yet, rather than forgetting technology, this study aims to reveal how such encounters can actually offer rich grounds for enlivening the act of dancing itself. Significantly, the work presented here will purport that a more synergistic relationship can be realised when a dancer concentrates her perceptual, embodied and kinaesthetic sensibilities as part of an active and emerging encounter, rather than seeking to syncopate her movements with technological effects or outcomes. The idea of an encounter has been usefully adopted in this study, and thus the premise to "*Re-member"* (ibid.) the body became a key focus. In order to describe their embodied encounters, the dancers therefore used a concept of live-digital to destabilize their normative methods for moving. This originated from the application of a number of key philosophical concerns that were explored as part

of their embodied experiences within the studio setting. This became the means by which the two main questions of the thesis have been addressed.

## 5. A concept for live-digital dancing: Live-digital encounters

By following a methodological process, which explores a particular imbrication of both practical and philosophical concerns, a concept for live-digital therefore provides a meaningful way of engaging in mediated environments. A concept for live-digital is therefore founded on a series of developing key concerns, including the body-as-image-as-self, the gaze, and time, texture and quality, which are derived from the philosophical concepts of individuation and singularity. Crucially these have been developed through the studio practice. Moreover, such concerns arose through the dancer's developing sense of her emerging encounters with simultaneous projections of self, which signified a fundamental shift in her perception and highlighted the potential for re-thinking movement making. Live-digital as concept not only encompasses the lived, physical and digital, it meaningfully characterizes the complexities of a dancer's embodied experience of moving in such environments. For this reason, live-digital serves as a useful contribution to the ways in which bodies and technologies can be both conceived and experienced in the context of digital dance performance.

Live-digital as a concept therefore proposes that a dancer can re-engage, at a fundamental level, with the changing characteristics of a mediatised environment in order to explore innovation and invention in her movements. This follows a methodological approach whereby a number of possible encounters are developed and conceived iteratively within the studio setting. Such encounters are designed to encourage the dancers to perceive the emergence of materials as part of a dynamic system[8]. In so doing, she is invited to engage in a process of invention and discovery not only in terms of her

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[8] I use the term dynamic system to express a continuous, and continuously adapting, process that encompasses both the technological set-up (use of software, placement of cameras, content in the image, etc.) and any movements generated in response. Moreover, any movement imperatives that arose through an encounter were also able to define and change both the technological parameters and/or visual make-up of the space (placement of screens and dancers for example), as well as proposing alternative methods or tasks for how best to respond to the emerging situation.

movement making, but significantly in terms of her perception of, and ability to affect, the system also. Furthermore, in order for this to happen it was imperative that the evolving creative and/or technological process could be continually shaped and then re-shaped according to the experience of the dancer.

Therefore, the dancers were not only moving and responding to technological information, they became instructive of how and why such a dynamic system might develop as a result. Creating live-digital encounters came about via a continuous process of responding, reflecting, programming and experiencing, different states that were designed and crafted by me and in later works in collaboration with the dancers through the chosen software Isadora. In later works collaborating with composer Simon Atkinson and filmmaker Laura McGregor enriched the process further. Significantly, rather than asking the dancers to create and learn set movement phrases which were choreographed and syncopated with the mediated image, as described in section 3 above for example, each live-digital encounter invited her to continually innovate in response to the emerging situation. This was done through a variety of methods including the use of real-time video feeds, as well as responding to pre-recorded images and sounds (see chapter 3: In practice, for a detailed description of all of the works that evolved over the 6 year period). Consequently, the dancers could not rely on old techniques or patterns of movement, which might have been previously learnt and/or rehearsed. By contrast they were inspired to re-engage in an active decision making process, which was centred on how and why they felt compelled to move in relation to the changing environment, and, most notably, in the context of a process and a system which was continually changing and transforming.

## 6. Live-digital towards a methodology

Key to a concept of live-digital dancing then is the dancer's awareness of *how* to be in such environments. The explicit focus on practice has therefore been crucial for developing such a perspective. This not only offers a way of analysing the problematic medium, it presents further empirical and experiential knowledge to the field. Developing particular methods for creating an encounter with visual and aural materials has thus continued to shape the portfolio of works. These works, or what might be better termed as experiences, have elicited particular ways of responding to live and digital materials and behaving within a live-digital environment. Whilst this thesis does not propose a step-by-step guide to making live-digital dance[9], it does offer a purposeful framework for re-considering the difficult relationships between bodies and mediated images. What is more, this has brought about methods that, in and of themselves, establish a non-binary relationship between dance and the mediated. This is what has ultimately challenged the dominance of the digital.

Methodologically, each encounter was informed by, and then became instructive of, those questions and possibilities posed for subsequent encounters. As discussed, this set in motion a continually adapting dynamic system[10]. Similar to improvisatory practices, which are considered by De Spain as, "A way of being in the world...Its roots, in my opinion, are in the fundamental relationship between intention and action" (2014:10-11), the dancer in this work was also importantly engaged in terms of her intention and ability to act in the moment of performance. Aligning this work to improvisatory practices offers a useful definition. However, this work is not concerned with the practices of improvisation per se, since this type of work also presents the dancer with additional possibilities that are not bound by the laws of movement practice

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[9] My approach to the work is related to an aesthetic that has arisen over the course of the study. I therefore tackle the problematic medium by means of a particular poetic and artistic receptiveness. This places emphasis on a particular qualitative treatment of image, sound and bodies, as can be traced across all of the works in chapter 3.

[10] This system is clearly traceable, and is illustrated at the beginning of each of the works in chapter 3: *In* Practice.

alone. The methodology offered here establishes additional knowledge due to the possibility for activating and perceiving movements across both physical and digital domains. Similarly, the dancer in this work has been engaged in a process of intention and action as De Spain describes above. Yet, as this study will progressively propose, in addition she has been able to challenge the very idea of how and why to move by perceiving the work not as either live and/or digital, but as live-digital in nature.

In order to conceive of her movements as being potentially live-digital in nature, it was therefore essential that the methodology enabled the dancers to think about her position in such a process from a fresh perspective. To do this, the study engaged with philosophical notions where ideas of emergence and existence became a means for letting go of a normal conception of what it means to move. The idea that she was part and parcel of a dynamic system was not then only a practical concern, in that she was intent on affecting change as part of the process, but it was a perceptual one also. As a consequence, she also began to ask more fundamental question that tended towards her very existence between these two realms. And so, as the work developed, the methodological approach required a level of engagement that was not only practical[11] but also philosophical in nature.

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[11] I recognize here that distinguishing between practical and philosophical could suggest that doing is somehow separate to thinking. That is not my intention. However, making the distinction between the practical work, i.e. in terms of the nuts and bolts of movement making, and those ideas or concepts which became instructive of a new mode of doing, is useful to make a point. I am of the belief that practice is, as Robin Nelson has described, as "doing-thinking" (2013:19).

**7. Methodology**

A case for live-digital dancing is made through the imbrication of experiential encounters and a particular philosophical attention to the emerging manifestation of live and digital materials. This imbrication can be expressed as two interchangeable processes: Firstly, via embodied practical/experiential encounters. These arose through practical and technological explorations that were defined and then changed as part of a dynamic system. Secondly, through philosophical reflection, which explored a fresh perception of live and digital materials through an engagement with concepts of individuation and singularity. This fresh perception destabilised normative conceptions of bodies, images and sounds as they appeared via live-digital encounters, which continuously fed into the practical/experiential encounters.

The research methodologies were applied via the process of moving within such encounters, and can be assigned to a category of either Practice-led, or Practice-based research, as defined by scholars such as Brad Haseman (2007), Estelle Barrett and Barbara Bolt (2007), and Robin Nelson (2013).  Haseman describes a Practice-led research process as that "which is initiated in practice, where questions, problems, challenges are identified and formed by the needs of practice…" (2007:147). Similarly, Barrett describes, "The innovative and critical potential of practice-based research lies in its capacity to generate personally situated knowledge and new ways of modelling and externalising such knowledge…" (2007:2). Nelson's practices of knowing through experience, otherwise termed "doing-thinking" (2013:19), in accordance with Haseman, Barrett and Bolt, have been particularly useful for this study's analysis. Nelson's model essentially highlights the importance of an embodied / thinking practice, which places experience at the fore. Furthermore, a concept of "doing-thinking" (ibid.) also reflects Stern's "moving-thinking-feeling" (2013:6), and Manning's "sensing bodies in movement" (2007, 2009, 2013), which accords with the trajectory of my own experiences. Hence, each study was informed by, and subsequently underpinned via, an iterative process of experiencing, evaluating,

and reassessing the emerging outcomes by continuously interweaving practice and theory.

To do this a variety of activities were employed including: improvisation, choreography, video/media production, multi-media programming, philosophical recognition, writing, reflective practice, and evaluation. Furthermore, the interconnections between the mediums of dance, image and sound, as they were experienced in the work, also called for a methodological approach that was multi-modal in nature. As such, it was useful to think about, "Render[ing] porous the… binary between theory and practice, [this] involves an iterative, dialogic engagement of doing-thinking" (Nelson 2013:19). Broadly based within qualitative modes of inquiry, the notion of doing-thinking became a useful way for shifting between practice, scholarship, and philosophical interpretation. The ability to switch between these different modes of enquiry became instructive of the resulting methodology. However, because the main thrust of this study was to engage with experiential encounters, the concerns of the thesis were instructed through choreographic process, and so the research questions were derived through practice. As such, I always began with an intention to move. It is therefore useful to briefly discuss how the movement was explored.

The movement material was largely constructed via improvisatory tasks that dealt initially with the constraints defined by the technological environment (for example a simple call and response system was set up with a series of loops in *Shift* – see chapter 3.2a), which later began to include the distillation and refinement of movements as they were re-appropriated and re-experienced within the developing mediated environments (see chapter 3.2b & c). At no point was movement set. However, the generational processes, particularly for me over a period of six years, and for dance artist Jodie Davis who worked with me over the period of two and a half years, were nonetheless refined and attuned as we became more adept at understanding and appreciating our responses in

relation to the technological environment. The movement imperatives have not been about defining a particular form, or even finding a specific technique for moving, but rather have been focused on searching for a "way of being" (De Spain 2014:10-11). The resulting movement practice therefore highlights the potential for making a range of movement choices that take effect as both live and digital manifestations of being.

In terms of making movement choices, I have also been draw to Bojana Cvejić's idea of choreographing problems. In an article titled, *From odd encounters to a prospective confluence: Dance-philosophy* (2015a), she advocates, and makes a case for, choreographing beyond a normative conception. She describes this as choreographing problems, which is also the title of a subsequent book called *Choreographing problems: Expressive concepts in contemporary dance and performance* (2015b). In her discussions, Cvejić examines the varied, and somewhat absent position of dance in philosophy. In her discussion, she characterizes a growing body of choreographers who have been described, incorrectly according to Cvejić, as the new wave of conceptual dance artists. Drawing on this group of artists, whose practices challenge the normative ideals of choreographic thinking, namely the representational modes of choreographing dance by creating meaning out of movement within a theatrical performance setting, she highlights a transformation of practice that interrogates the very substance of dance. Such artists represent an emerging field that moves beyond the categorization of either choreography or performance. She states in her article,

> It was the choreographers themselves—Jérôme Bel, Xavier Le Roy, Vera Mantero, Juan Dominguez, Mårten Spångberg, Eszter Salamon, Mette Ingvartsen, BADco and others across Europe—who shifted their focus from the formal-expressive categories of style, language and thematic 'aboutness' of an aesthetic object to a critical and experimental inquiry into the conditions of theatrical representation, such as the act and the subject of performance (2015a:12-13).

Her exploration of the very subject of what constitutes dance, in the context of these artists, also links with Manning's notion of a transformation of practice (as

discussed in section 2 above). I therefore align my works in a category of establishing problems, which enables the dancer to think differently about the representation and construct of choreography and performance.

Equally, establishing problems, or otherwise said creating encounters for invention, not only in the practices of moving in digitally enhanced environments, but in addition, being solely responsible for programming the movement within such situations, has meant that creating material in both the studio and as programmer has destabilized a normative process for making movement. Learning to control visual material myself within the software therefore had an impact on the ways in which I composed bodies in time and space. This was not only within the live context, but also in terms of how that material was managed and devised in computational terms (here I am referring to the processing of visual images). The influence of technological know-how, or what could be termed the artist as choreographer and programmer, has therefore also been instructive of the emerging works. Hence, the means by which the work evolved also became a stratagem for understanding and managing material *across* mediums.

In the development of the work, I have not only been concerned with how I understand the material I am exploring creatively and practically, I have also been searching for a way to identify with what I do and why I do it. Acknowledging that the emerging practice is at once both tied to an evolving experience and an appreciation of said experiences through artistic-scholarly research (such as viewing, writing, reflecting, etcetera. and thus the how), has also been important for the analysis of a process that is, by its very nature, interpretative. To that end, the works presented, beyond being tacitly and experientially rich, have been delivered through a rigorous and iterative process.

To that end, dialogue and collaboration were also critical to the evolving methodology. Although I have been responsible for framing the explorations

both practically and technologically, as well as directing and generating material as part of the studio-based research, the work has arisen through co-operation and collective thinking. I worked with a number of collaborators, but most consistently with composer Simon Atkinson, filmmaker Laura McGregor, and fellow dance artist Jodie Davis. Rudi Laermans' discussion of collaboration is useful for expressing how we approached the collaborative process, he states,

> Artistic collaboration nowadays bets on the potentialities of cooperation itself. They are realized 'now, here', through the actual working together in a studio space, yet simultaneously every momentary realisation of a team's potential hints at prospective possibilities. In this sense, artistic collaboration is always a collaboration 'yet to come' (2012:94).

Through dialogue, and by working together over sustained periods of time within the studio setting, we aimed to consider and explore our collaboration in much the same way as Laermans defines, by dealing with any artistic impetus as a "prospective possibility" (ibid.), which could develop collectively. Rather than undertaking collaboration in the usual manner where each respective artist would deliver his or her own response to a particular stimulus[12], we endeavoured to consider the process cooperatively. This also links to Jo Butterworth's notions of the choreographer as collaborator and the dancer as contributor (2009:186-187).

By way of an illustration the methodology arose as follows:

- Phase 1) Embodied experience / practical approaches. This arises through practical and technological procedures that are defined and then changed as part of a dynamic system.

- Phase 2) Philosophical reflection, which explores a fresh perception of live and digital materials through an engagement with concepts of individuation and singularity. This fresh perception destabilizes normative conceptions of bodies, images and sounds as they appear via live-digital encounters.

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[12] For example in more traditional dance and music practices a musician would compose a piece of music, which he/she would then offer to the choreographer to work with or visa versa.

- Phase 3) Models for assembling materials via non-binary relationships.

The above phases are by no means distinct and each phase folds back in on itself, and expands in response to the others. However, it has been useful to think about the work developing through such phasing, particularly in terms of charting a methodological approach for the practice. The resulting methodology consequently addresses the above three phases by way of exploring a number of sub-questions. These were posed in relation to the two main questions of the thesis, as discussed in chapter 1.

In relation to question 1: How can dance within media-rich environments avoid the trap of the dominance of the digital, the following questions were considered:

- Phase 1) To what extent can live and mediated materials be uncoupled, in practice, from a normative presentation whereby dance services the technology or visa versa?
- Phase 2) How can re-thinking notions of singularity, specifically within live and mediated environments, open up new ways of experiencing live and digital materiality?
- Phase 3) By fore fronting the perceptual and interpretative decisions made by the dancer, in relation to the processes involved in digital processing, how can such practices support a non-binary topography of movement, sound and image?

In relation to question 2: In what ways can a dancer's perceptual, and interpretative decision making process transform when she is immersed in an environment with simultaneous projections of self, the following questions arose:

- Phase 1) How, as a dancer, can you remain dynamic as part of a non-binary relationship with digital media?
- Phase 2) Can a dancer think differently about her self and the materiality of movement, sound, and image as part of an emergent process?

- Phase 3) How does the integration of a media software tool in to the dancer's performance environment inspire new relationship as part of a non-binary assemblage of material?

The above questions appeared variously throughout the practical explorations (see chapter 3), which ultimately served to highlight the interrelationships between theory and practice.

## 8. Conclusion

In summary, the imbrication between the on-going studio-based research and the on-going literature review meant that those research imperatives most relevant for this study, all of which have been extemporized through an engagement with philosophical ideas, developed via these phases. This also meant that the works did not represent finished products, or fixed methods for moving. Rather it set a methodological course, which drew upon a particular embodied and philosophical conception, which transpired through a continued (and continuing) experience of what constitutes live-digital dancing.

The subject of the following chapter is to explore, in more detail, a philosophical framework for the practice, which begins with a discussion of Erin Manning's notion of individuation and Jean-Luc Nancy's signifying body. These concepts in particular have helped to establish the intention for moving as live-digital.

# Chapter 2

# Philosophical frameworks for practice

## 1. Philosophical positioning

This chapter explores how my reading of certain philosophical concepts helped to transform the processes for moving. Most notably, my reading of philosophy became instrumental to the ways in which I managed and developed my practice in the studio setting. Engaging with philosophy as an important facet of the movement practice helped me to consider a cluster of concerns, which ultimately led me to invent a concept for live-digital dancing. These concerns, which are centered on issues of the body and embodiment, were put together to create a reference point that I continually applied to my practice.

Theories, which present the digital as key to the creation and subsequent transformation of performance, including Nathaniel Stern's notion of an encounter with technology, as well as Auslander's proposition of the dominance of the digital have been key. Such philosophical and theoretical positions have been particularly useful in bringing into question the notion of the dancer's body as an autonomous and entirely separate body, which is pre-defined and thus separate to its environment. This has resulted in a reinterpretation of a body as a "haecceity: the thisness of experience active as a singularity in the dephased now. Not individual but individuation. Not subject but collectivity... [which is] more assemblage than form, more associated milieu than Being" (Manning 2013:30). This provided a philosophical lens for rethinking the dancer's body and by association, how she can be empowered to think differently about her relationship to the digital, and how such practices can challenge the dominance of the digital. Although Manning and Nancy speak alternatively about such ideas, both posit a body beyond that which is individual, separate and autonomous which therefore opens up the possibility for a body to be active as part of an evolving and emerging encounter. In turn, this provided a mode of thought that was implemented throughout the studio-based practice i.e. such philosophical concepts became part of the methodology for assimilating movement and the digital – beyond a self-contained body – as part of an emergent process. The subject of this chapter is to develop the philosophical thinking of the thesis and

to contextualize the works by exploring prominent theories that have been most relevant to the emerging practice.

## 2. Philosophical considerations concerning embodiment

The idea that a dancer was part and parcel of a dynamic system, and given that she was being asked to consider such a process as being live-digital in nature, meant that the choreographic enquiry developed into an exploration of ideas of existence. In principle, it seemed possible to be able to think about being live-digital in nature, by trying to let go of the idea that her body was indeed autonomous and separate. This remained tricky, given that the context within which she was moving was still incumbent on actualising movements in order to generate the work. The dancers were therefore concerned with what live-digital meant in practice. This problematized further not only what it meant to move in such situations, but it also began to elicit questions relating to her sense of self, or otherwise said what was her own nature within the work, which was described by the dancers as being somehow in-between the live and the digital. Consequently, the movement imperatives were framed by thinking about what constituted a body in such situations, and, by association, the dancers began to question their own sense of being. The pursuit of what it meant to be live-digital then began to influence the movement.

In chapter 1, I discussed Manning and Stern's focus on a body as something, which extends beyond itself. As already described, this has been key to opening up the choreographic enquiry. Such a conception came about as a result of the practical explorations, which attempted to problematize dualistic relationships between dancing and achieving a particular technological result. What transpired from this was a desire to engage in a process, which might enable the dancer to move beyond a mere cause and effect scenario. Such an attempt to understand, or indeed to actualise movement within such a situation, is what therefore necessitated further philosophical consideration and reflection. My reading of Manning and Stern early on in the practical explorations is what led me to consider Process Philosophy, and in particular with the premise that Being is dynamic. I have been selective in my use of such philosophical concepts, and I have engaged with ideas that best suit the needs of the emerging practice. It is

useful to briefly describe those concepts most pertinent to the study.

To that end, this study has been situated broadly within the field of continental philosophy, and more precisely engages with activist philosophical concepts derived from the series Technologies of Lived Abstraction edited by Brian Massumi and Erin Manning along with Jean-Luc Nancy's *Corpus* (2008). From the series, I have been drawn to the writings of Erin Manning (2009, 2013), Brian Massumi (2011), and Stamatia Portanova (2013) in particular, all of who engage with the occurent arts and philosophical concepts related to affect, relation, emergence, complexity, process and embodied perception. Explicitly, this study has drawn upon a notion of individuation, as discussed by Manning (2013), and the signifying body as discussed by Nancy (2000, 2008). My use, and thus my understanding of such philosophical concepts, became significant through the practice. It is important to clarify here that such concepts were not useful in that they helped to explain the work. Rather, it was through an engagement with certain philosophical questions that arose through acts of moving, which began to elucidate and expose useful questions and problems most pressing for a transformation of the practice. Consequently, the questions the dancers were asking in the studio setting prompted us to search for different ways to think about the process.  The work was therefore concerned with questions that were philosophical in nature because of a shift in the practice, and not as a philosophical account of the works meaning per se.

In brief, individuation, as it has been characterized by Manning, describes a state that is always in emergence. She states, "Movement is a process of individuation where matter and form remain in flux, virtually shape-shifting into malleable environments" (2009:18). Similarly she mentions that,

> A moving body – a sensing body – cannot be identified. It individuates always in excess of its previous identifications, remaining open to qualitative reiteration... Sensing bodies in movement are not individual bodies; their individuations are always collective. They are worlding bodies that are one with the potential for movement. To become is to move toward something that is not yet. (2007:XVIII).

Manning's notion of individuating bodies, which are, as she describes full of the potential for movement, accord with the continental philosophies of Gilles Deleuze and Felix Guattari, and Gilbert Simondon. Whilst the scope of this study does not extend to an analysis of such Philosophers, it is pertinent to recognize the significance of Deleuze's concepts of multiplicity (2004) and notions of assemblage as being a substratum of Manning's discussion, as are Simondon's concepts of individuation and the preindividual[13]. In chapter 2 of her book *Always more than one: Individuation's dance* (2013), Manning considers Simondon's notion of individuation and the preindividual in relation to Deleuze's concept of a life. This is a prime example of how such ideas penetrate her thinking of sensing bodies in movement.

In her discussion she explores the potential for the body, (she points out that the idea of a body is actually "a misnomer" (2013:16)), to continually endure beyond a singular definition. She continues, "If the body isn't the starting point, what is? According to Gilbert Simondon, the body is a *relative* fact, a phase of being. Every phase of being is co-constituted by two commingling dimensions of process: individuation and the preindividual" (ibid.). I understand this to be significant in so far as the subject of a choreographic investigation is normally concerned with the form and matter of a dancer's body, which is, by and large, what defines her role within the choreographic process, and is what constitutes the how of making dance. Hence, what could be termed a singular definition of dancing: a body that moves in space and time. Yet, if we are to conceive of a body beyond mere flesh and bone, "where matter and form remain in flux" (2007:XVIII), then how one thinks about making movement besides the manipulation of limbs and body parts in space and time (albeit I recognize that this is a rather simplistic description of what a dancer actually does), is what is at

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[13] See Simon Mills' discussion in his book *Gilbert Simondon. Information, Technology and Media* (2016), in which he discusses Simondon's "opposition to substantialist philosophical theories that prioritize the ontologically complete individual above the process of their individuation" (2016:11). He continues, "The preindividual does not name any primary entity or substance as such, but rather a condition of being" (2016:45).

stake for a transformation of practice.

In the studio we engaged with a notion of individuation, which I understand to be the complex, and continually changing, processes of "moving-thinking-feeling" (Stern 2013:6), whereby movements actualize only in so far as they are already part and parcel of the next acceleration, or germination of a subsequent, or otherwise said co-joined movement[14]. This helped us open-up the problem of our body's subservience to the digital. Moreover, as movements became initiated physically, and yet, as they were being constantly modified by the dancer's experience of anticipating, remembering, feeling, fluctuating, responding, and agitating between states of bodily manifestations (I take this to include her flesh and bones as well as her digital manifestation), the process resulted in her questioning her own sense of self, from a fresh position. Thus, because of our engagement in the studio with such philosophical ideas, the problem of accomplishing movements to achieve a technological result developed into an enquiry that was based on experience proper. Furthermore, engaging with the idea of sensing bodies, where their "individuations are always collective" (Manning 2007:XVIII), required a leap of faith, particularly for the dancers who were still required to actualize movements in relation to the digital.

This necessitated a transformed process. For that reason, it became important for the dancers in my own work to think that, "A body, as such, is therefore extremely short-lived: the body cannot be seen as that which holds together across space and time… Body is event, known as such only in the collusions of a process shifting" (Manning 2013:18). Crucial here is the idea that the process is forever shifting. Likewise, the idea that a body, in the sense that we associate choreography to be the process of shaping bodies in time and space, is short-lived, is what provided the scaffold for thinking about "the collusions of a

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[14] For example, the process of stretching an arm outwards begins to change the gravitation pull within the torso, which results in a movement of the rib cage. But, which also elicits sensations of falling, which also stimulates the wonder of being off balance, steeped in memories of playing such a game as a child etcetera.

process shifting" (ibid.).

This way of approaching dance practice was also driven by the writings of Jean Luc Nancy who discusses a concept of the signifying body (2008) and Being-with (2000). Nancy's focus, whilst based on ideas of the body within the Western tradition, and specifically in relation to Christianity, his deconstruction of an Absolute body (that of God) also brought into question the subject of a body as that which exists beyond mere flesh and bone; what Nancy describes as "this multitude of bodies, which no spirit has made or engendered" (2008:87). Most specifically for Nancy, the body exists as part of a community of bodies, whereby the body is continuously touching and reaching out toward other bodies, and by association is constantly being touched and touching itself. He posits that bodies are continuously differentiating between states of self and other, as they exist in relation to our ideas, sensations, thoughts, and attributed meanings of *what* a body is in the world. He describes, "Bodies are first and always other - just as others are first and always bodies" (2008:29). Here Nancy is referring to the reciprocal relationships between our singular experiences of the world, as it then becomes defined by our collective experience, or Being-with each other. He remarks, "Being cannot *be* anything but being-with-one-another, circulating in the *with* and as the *with* of this singularly plural coexistence" (2000:3).

The idea that the dancer could think about her body as something that is "short-lived" (Manning 2013:18) to use Manning's term, was thus supported further by the idea that bodies (plural), were also part of a circulating "singularly plural coexistence" (Nancy 2000:3). This was particularly useful given that the practical explorations developed from solo performances, in to duets with other dancers. So, whilst Manning's writing helped to provide the scaffold for a reconceptualization of an emergent process, Nancy's ideas became informative of an experience of moving across and between states of self and other (see my discussion of the body-as-image-and-self on page 78 for example). Therefore, Nancy's writings, whilst different in tone and emphasis to Manning's, were also

instructive of my attempts move beyond a traditional view of the body made simply of material substance, particularly in choreographic terms.

In addition to the examination of the above philosophical ideas, which can be traced throughout the written thesis, the works presented also drew upon related theories of embodiment, liveness, and presence, all of which have intersected with the practice at different times. In addition I have also been drawn to the works of Vivian Sobchack (2004, 2011), who problematizes some of the normative relationships between images and sound within Western popular contemporary cinema, and Douglas Gordon, a media artist who creates performance-based videos. Sobchack's writing and Gordon's performance-based videos (specifically *24 Hour Pyscho* 1993) are used specifically to help discuss the transformations that occurred throughout the choreographic enquiry (see chapter 3). Their work became particularly useful for this study due to my own engagement and transformed experiences of moving with images, projection and sound.

In summary, the interconnection between the mediums of dance, image and sound therefore called for approaches that were multi-modal and thus theoretically varied. My application of such theories, as they are dispersed throughout the following chapters, helped to "render porous the… binary between theory and practice, [which] involves an iterative, dialogic engagement of doing-thinking" (Nelson 2013:19). By its very nature, the creative process required the application of particular concepts and theories at different times. Indicative of a process that did not follow a linear logic, the assimilation of conceptual ideas and philosophical readings became interwoven as part of the emerging explorations. As Matthew Reason describes,

> The particular forms of knowing that can be generated through arts practice are those of embodied, tacit and material knowledge, where discovery happens through the action of arts making, and in reflection in and upon that action. Located within action, the particular claim of practice-based research is that if offers not just a different way of doing

> things than more traditional research methodologies but rather, and more importantly, access to different forms of knowledge. (2012: 195)[15]

Again, in order to access a different way of knowing/understanding the evolving practice, the use of such contextual materials has been helpful in providing a specific reading and thus experience of the work.

Lastly, through an exploration of the key themes of embodiment, liveness and presence, a number of sub themes became particularly relevant, namely, intimacy, immersion, and distance and/or alienation through technology. As such, these become invested themes, which appear variously in the discussion of works to follow. This is the subject of chapter 3.

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[15] For a similar reading of dance as a form of knowledge see Ann Pakes' Knowing through dance-making. Choreography, practical knowledge and practice-as-research in *Contemporary Choreography. A critical reader* (2009).

# Chapter 3

# Artistic works and analysis

## 1. Précis of the submitted works

By way of expressing the works key findings, it is useful to return to the methodological phases described in chapter 1 (see section 7). These are described as:

- Phase 1) Embodied experience / practical approaches. This arises through practical and technological procedures that are defined and then changed as part of a dynamic system.

- Phase 2) Philosophical reflection, which explores a fresh perception of live and digital materials through an engagement with individuation and singularity. This fresh perception destabilizes normative conceptions of bodies, images and sounds as they appear via live-digital encounters.

- Phase 3) Models for assembling materials via non-binary relationships.

The above phases, which developed progressively across all of the three works helped to set in motion a methodological approach. *Shift*, which was the first dance piece, developed in response to the initial explorations that took place in 2010/2011 and which helped to establish the three phases above. The overall intention was to create a progressive and responsive choreographic and technological system[16], which the dancer could respond to. As such, she was given a set of technological parameters that helped to determine the spatial dimensions of the performance area in which she could move, as well as prescribing a series of varying looping mechanisms that captured and projected her image back into the space. As a choreographic structure, this meant that the dancer was able to negotiate an environment that was manageable in terms of making movement material, but which could also change depending on her reactions to the structures put in place. It was therefore important that she had enough direction in terms of negotiating the technological environment, but that the process could also shift depending on her reactions to it. By considering the

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[16] I use the term system to represent both choreographic and technological parameters, as well as signifying the dynamic process of responding, changing, and advances ideas as they arise from the exploration of choreographic and technological information.

work via the above three phases it was possible to explore and test the dancers experiences in practice, whilst at the time informing any findings through a philosophical lens. This process then gave rise to a strategy for assembling materials beyond the binary relationships previously established. The above phases therefore established a series of practical methods, which ultimately led to a collection of concerns for a concept of live-digital dancing.

*Shift* established the foundations for these concerns, which were arrived at by engaging with the real-time projection of the dancer's image, which was projected almost simultaneously back into the performance environment. What arose from her practical explorations were two key concerns: the body-as-image-as-self and the gaze. These concerns helped the dancers to problematize the idea that her fleshy body was somehow whole, and as such separate from the digital. As such, the work began to explore what Stern and Manning had described as a "moving-thinking-feeling" (Stern 2013:6) body, or as a "sensing body in movement" (Manning 2007, 2009, 2013). Manning's reading of individuation and Nancy's concept of the signifying body, proved useful in terms of trying to open up new ways of experiencing live and digital materiality, which I described in chapter three, section 1a as the body-as-image-as-self.

The body-as-image-as-self thus became a means for opening up the dancer's sense of self, which led to further conceptual concerns for reconsidering her body in ontological and perceptual terms. This progressed further as she began to experience an intense connection with her self-as-other through the gaze. Significantly, the powerful connections through the gaze, along with a reconsideration of her sense of gravity and spatial proximity to the image, meant that she was able to make alternative decisions about her movements. This was crucially dependent on the ways in which the technology could both allow her to view herself differently, and also in terms of how she could then effect the system further (i.e. the dancers became concerned with how they could either

work against the system by moving the positioning of cameras, or by trying to disrupt the looping mechanism – see analysis of *Shift* in chapter 3).

The gaze then became a constituent characteristic of the body-as-image-as-self, which thus became instructive of moving beyond a concept of her body as something separate to the digital. This then gave rise to further questions regarding the complexity of the system and how best to provide enough structure, but also enough room for invention and play. Consequently the need for shifting both the technological landscape and increasing the potential for new encounters provided the foundations for the second work *Betwixt and Between*.

What transpired progressively in *Betwixt and Between* and *Modulation_one* was the means by which a dancer could become attuned to her feelings of being somehow off kilter. This was particularly interesting given the strong encounters she was still having with her body-as-image-as-self and the gaze, but also in terms of a particular treatment to the spatial and temporal handling of the image, and later the sound. Significantly, what arose through this particular treatment of time, as well as manipulating changes to the characteristic qualities of the images was a possibility to explore their body-as-image-as-self, over and above just responding to the reappearance of the image via the looping mechanism. Being able to explore a developing relationship, as well as having space and time to appreciate the image's rich characteristic qualities, then became key. Consequently, this had a further effect on how the dancers managed their own internal rhythms and connections with self-as-other and her fellow dancer. Consequently, this led to the further concerns of porosity and time, texture and quality, which are also constituent elements for a concept of live-digital dancing.

## 2. Practical 1 ~ *Shift* digital dance performance

The first iteration of the work began with *Shift*, which was born out of a period of research and development that took place in the second year of study (2011) and which grew out of the very first initial explorations conducted in 2010. *Shift* was supported by a commission from the Lincoln Performing Arts Centre (LPAC), and was performed at the Centre's first ever Newvolutions arts programmed in January 2012. *Shift* was also performed as part of De Montfort University's Cultural Exchanges International Festival in February 2012.

In order to discuss each work, I begin with a brief description of the system. I use the term system to represent both choreographic and technological parameters, as well as signifying the dynamic process of responding, changing, and advancing ideas as they arise from the exploration of choreographic and technological information. Having discussed the system, I then provide an analysis of two key concerns, which became important for exploring a concept of live-digital. These concerns are described as the body-as-image-as-self, and the gaze.

## System 1

*Shift* presented a dancer (initially myself as a solo artist and later with 1 other dancer, Emilia Robinson) moving on top of a performance area that was defined by two projections. The explorations began with a single projection screen, which later developed into the use of two screens, which were projected next to each other, as can be seen in figures 1 & 2 below.

Figures 1 & 2: *Shift*. Photography: Andy Elston 2011

Two cameras, rigged into the ceiling, then tracked the dancers' movements. The image of the dancer was then projected back onto the floor. These two images created a rectangular frame, which the dancer then inhabited. This dictated the overall performance space and prescribed the area in which the dancer could move. Each projection was processed through a separate computer and presented altering variants in terms of how the image was processed[17]. The work did not make use of any pre-recorded footage and the image was made solely from the dancers' movements as they were captured and then replayed in real-time. The work followed a pattern, which can be described as a series of states (or what could loosely be termed sections), where the changes in the timing of the loops, along with subtle shifts in the texture and exposure of the image, created an environment for her to respond to and move within. The dancer's job was to move during each state (this ranged from short loops of 1-2minutes, to longer loops of 5-8 minutes), exploring her connection to the digital image.

Therefore, the crux of the set-up for *Shift* was as follows: Firstly, movements were captured and projected back into the space in real-time (although the latency in the image created a perceptible gap between the movement and its immediate projection). The second phase comprised of the capture and subsequent delay of the image, which was projected back onto the floor at varying time scales, thus presenting a digital echo of what had just been performed. The timing of the delay changed incrementally over time. This process repeated continuously, which created an on-going looping mechanism and set in motion a process-driven framework. The dancer was required to move for a set amount of time in the knowledge that she could be seen immediately in live space and then again in digital space.[18] On top of that the dancers also knew that what had been captured only moments earlier would not only appear in screen space, but crucially, depending on further manipulations within Isadora,

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[17] The image was processed using Coniglio's Isadora software, specifically in terms of developing a variety of different patches that combine a selection of generative tools. See troikatronix.com for further details.

[18] Although I was responsible for programming in Isadora, I worked very closely with both Jodie and Emilia, who would suggest and direct me in terms of changing or altering the patches.

could appear at different times and on different screens within the performance area. Because of the relatively quick turn around from one loop to the next, the dancer had to act very quickly in terms of making a decision regarding what movements would set the loop going, whilst responding to the image as it then reappeared. The varying degrees to which the perspective could change, and as a result how the live-feed was then manipulated and processed through Isadora, changed as the work progressed.

Additionally, in order to manage this, it became important for the dancer to see her image within her visual perceptual field. When the image was projected onto a standard wall-based screen for example, the connections between dancer and image were seen to be less effective. After trying many different angles and surfaces, projecting onto the floor was deemed to be the most useful for maintaining a visual connection. This was done by way of creating a manageable perceptual field of vision. This also enabled the dancer to have sufficient range of movements within the performance environment, but was limited enough in terms of capturing her movements effectively through the cameras. This created, what was, a relatively small performance space (see figure 3 below).

Figure 3: *Shift*. Photography: Andy Elston 2011

*Shift's* system therefore set in motion a repetitive series of events that provoked particular methods and processes for moving. Most notably, the continuous stream of video footage, in correlation with the immediate capture and subsequent playing-back of movement meant that the dancers not only had to respond quickly, but they were faced with having to change their movement patterns in order to either adhere to, or effect a change to a previous movement's trajectory. For example the dancer may have been inspired to explore the articulation and management of her arms by moving them away from her torso because of the viewpoint of the projection (i.e. seeing her from above) for example.

This became immediately disrupted as a new loop began. As such, the new loops then presented her with an alternative perspective of her movements. Consequently, this created very short and vigorous improvisations. Moreover, these improvisations began to result in fast and dynamic sequences that tended to use the extremities of the body (arms, legs and head) in order to navigate a purposeful change in movement style and expression. The dancers became very

adept at prescribing these loops, and as time went on, they became more proficient at anticipating and then attempting to disrupt the system.

The criteria adopted for judging when the system was successful was based on whether the dancer could justify or recognise when a moment of exchange had taken place, or when a discernable dynamic relationship arose, which consequently changed her behaviour. As such, the dancers were drawn towards movements that could prescribe obvious changes in dynamic and spatial patterning. Improvisations were therefore initiated in order to set the system going, but later developed to include movement sequences that were initiated from one loop to the next. The speed and velocity at which some of the loops tended to play out meant that many of the improvisations were short in duration and vigorous in their management of the body. This gave the dancers a way of categorising their responses, which then helped to effect further changes in the system. This was done by inspiring a new shape or viewpoint, which could then influence the directives of any subsequent movement / technological parameter.  Exploring alternative rhythms or set-ups became the overriding intention for the artistic imperatives in each improvisation.

What became striking for each of the dancers was her recollection of what it had felt like to perform only moments before (encompassing changes in pace, quality, rhythm, etc.), whilst continuing to move through an accumulative sequence that was inspired by, and working in tandem with, a repeated version of that *same* material, albeit slightly delayed. The visual repetition of movement, as it was playing back in such a way, felt almost counterintuitive. Hence what became important for the dancers was how to deal with creating movements that could influence a particular shape or perspective in the image, whilst having to keep moving as those same movements were replayed back to them, albeit slightly after having physically made them. The arising relationship between movements and the digital echo is what then began to attract the dancers attention (see figure 4 below).

Figure 4: *Shift*. Photography: Andy Elston 2012

A significant outcome from this was that the dancer had to continually manage her movements across both live and digital space, which resulted in further conceptual concerns regarding where her body might be and how this affected her ability to initiate a further movement phrase.

**2a. Beyond a normative conception of the body**

In terms of initiating movement, it is useful to return to the main concerns of the study, which include issues of the body and embodiment. In chapter 1, I discussed the significance of the debate surrounding liveness, which led me to consider philosophical notions that explore the body beyond a normative concept. Using the philosophies of Manning in particular, I discussed opening-up the potential for thinking about the body beyond an autonomous concept. What transpired through *Shift* was the beginning of the dancers wrestling with such a concept. In order to analyze this further it is useful to draw on Susan Melrose who states, "'Body', in etymological terms, seems to have been understood to be a container… Not solid then, and not simply a matter of 'what a body can do', but also something which holds something different within it." (Melrose 2011:8) Such a concept, where the body is conceived of beyond its fleshy make-up, is what began to open up the potential for bodies (plural), to be explored beyond the hierarchical scenarios already described in chapters 1 and 2. In the following discussion, I explore how initiating movements across the two aspects of the dance prompted such questions within the studio setting. It is useful to note that such questions arose as part of the embodied practice, as the dancers grabbled with the environment, and not by posing them beforehand.  Consequently, it was in the course of moving that the dancers found themselves interrogating ideas surrounding the body.

Thus, in contrast to the idea that she was moving *with* the digital, which pinpoints her movements as separate to her digital echo, the dancers began to consider the idea that the body was a site of multiple trajectories, rhythms and qualities that transpired in and across her experiences of moving with the digital. This began to open up *what* might constitute her body, i.e. material/fleshy body (as actual matter - skin, bones, muscles, etc.). Furthermore, her experience of moving (in the sense that she was executing movements, which then rippled back into her visual field almost immediately in digital form) began to expose what Melrose describes as that "which holds something different within it"

(ibid.). The idea that the dancer could begin to conceive of the varying qualities of line, shape, form, quality etc. of her body, as it opened up in "relation" (Manning 2009) to the digital, then began to effect her choice of what to do next. Additionally, the impact of having to move in response to the digital echo began to dictate not only practical decisions, such as prescribing an alternative direction and /or enabling a new choice of quality or rhythm, but the dancers also began to ask more conceptual questions. In a reflection from one of the rehearsals I described not really knowing "where my body was" (Francksen 2011). The feeling of moving was somehow extended, or continued, as we began watching (and later dancing with) the movements that we had just performed only moments earlier. As a result the dancers were not merely watching but moving with the sense that their fleshy bodies were enveloped in a strange duet with their digital bodies. In this way the digital body was not only informative of how and why certain choices were made, but intriguingly became entangled in the experience of moving, albeit from a slightly removed position. So rather than merely developing new movements in order to continue the looping process, the interrelationships between the doing (setting off the loop) and the strange experience of seeing, and later dancing with their digital selves, began to affect how and why the dancers moved.

This links back to Hagendoorn's notion of the residual term (2002), whereby the dancers were effectively filling in the perceptual gaps between one loop and the next. Moreover, they were not merely filling in the perceptual gaps they were purposefully attempting to conceive of their movements as they materialized concurrently in both live and digital space. This was over and above the matter of moving in order to create the loop. Hagendoorn draws on psychologist Mihalyi Cszikszentmihalyi, who she states, "has argued that the human brain actively searches for difference and more complex scenes or events, once it gets used to whatever it is currently doing or perceiving" (2002:3). What is noteworthy here was the search for something more complex once an activity had been learnt and became known. From the initial explorations it became clear

that the dancers needed to become familiar enough with the looping materials so that they felt both comfortable and sufficiently able to create appropriate movement for each loop. However, once the looping mechanisms were effectively learnt she then began to try and explore the process of moving through invention and play. In terms of a method it was therefore important that the process progressed incremental, in that the dancers could firstly understand the technological structures in place. In this case the simple capture and loop of her real-time movements, which over time could change according to her learnt behaviours.

Furthermore, as they became more adept at recognising and then changing their responses relative to the looping mechanisms, the dancers began to search for ways to disrupt and intervene with the process. Significantly, as they began to play and invent new strategies for both setting off the loops and then reacting to their own and each others image. They began to describe what they were doing as switching backwards and forwards between states of me, her and us. This also helped to problematize the notion that her fleshy body was somehow whole, and as such separate from the digital. This resulted in a strange and somewhat affective re-imagining of the act of moving. It is worth noting here that the dancers recognised that their reactions to their own image was significantly different to that of their fellow dancer. The strong correlation between setting off a particular loop, and then experiencing that same movement as it was repeated almost immediately brought about discussions of memory, and notions of being somehow real and other simultaneously. This was described as a process of triggering the instantaneous memory of how the movement had just felt to perform, whilst attempting to move through a subsequent reaction or offshoot from that same movement, which changed how it felt to perform. Experiencing one's self again, almost simultaneously, seemed to give the movements a greater sense of intensity and purpose.

Moreover, because the dancer was effectively presented with a transformed version of what she had just done, or was doing (through the image capture), she became more critical of the ways in which she was performing and executing her movement material. For example, as the image appeared and disappeared depending on the timings of the loops, she became concerned with how best to maintain the resulting quality of her movements as they slipped backwards and forwards between her live and digital selves. In terms of how the movement manifested itself, and was subsequently changed or re-orientated spatially, temporally and qualitatively, meant that the determining rhythms and nuances within the movement became almost contemporaneous as they appeared, disappeared and the reappeared simultaneously. This significantly changed how she then instigated a subsequent reaction of movement for example.

This resounds with the conflicts posed in chapter 1 (see discussion on Auslander, Phelan and Blau on pg.19). The notion of what constituted the live in the above scenario was somehow altered because the flow and trajectory of the movements were tied-up in a strange coalescence of self, other, image and body. Therefore, as quickly as the movements had disappeared (see Phelan 1993, and her discussion of dance as an act of disappearance), they were not only reappearing *differently* via the image, but they were reappearing as such through her memory of having just performed them. Moreover, this happened in such a way as to ask her to re-engage with her immanent actions, in so far as she was in the process of setting up another loop, or similarly responding to her fellow dancer. What returned was not just as an image, or an imagined memory, but a continuous recapitulation of images, memories, qualities and trajectories that became manifest and united by her movement decisions in both live and digital form, described henceforth as her body-as-image-as-self.

**2b. The body-as-image-as-self**

By way of a further analysis, this could be described in Hagendoorn's terms as a manifestation of ε (2002), or as Jose Gill describes as that which resides within a "plane of immanence" (2002:124)[19]. The strange re-imagining of what was occurring across spaces and amidst temporal variances, all at the same time, is what inspired the dancers to change their behaviours and responses. Much like Gill's notion of intensities, which he describes as engendering both the thoughts, and manifestations of, a body as it dissolves from present, to past into the future, the dancers became encapsulated by their affordance for morphing between her different states of self-as-other. Consequently, even though the original task was inspired by a very simple cause and effect scenario, the substance of what arose was based on the dancer's perceptual awareness of being transformed through the image.

In terms of how to develop such findings it was useful to consider Jean-Luc Nancy's concept of the signifying body. It is worth quoting him at length,

> Sometimes this 'body' is itself an 'inside' where representation is formed or projected (sensation, perception, image, memory, idea, consciousness) – in which case the 'inside' appears (and appears *to itself*) as alien to the body, as 'spirit'. At other times, the body is the signifying 'outside', (a 'zero point' for orientation and aim, the sender and receiver of connections, the unconscious), and, in this case, the outside appears as a dense interiority, a cave overwhelmed, crammed with intentionality. Thus the signifying body never stops exchanging inside and outside, abolishing extension in the unique *organon* of a sign: exactly *where* and *whence* sense is formed and takes form. (2008:69)

Effectively, the reappearance of the dancer via her digital self was analogous to a deep sense of both being "inside" and "outside" (ibid.) in Nancy's terms. This was particularly interesting given that Nancy's discussion posits that we are in a continuous cycle of being with ourselves as instantaneously as we are with

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[19] Gill describes, "The virtual plane of movement is the plane of immanence. Its tension or intensity = 0, but on it are engendered the strongest intensities. On it, thought and body dissolve into one another ('thought' and 'the body' as empirical facts); it is the plane of heterogenesis of danced movement" (2002:124).

others. The simple structure of creating a loop brought about such a concept. Thus, the idea that one could not only dance with oneself[20], but that the inherent qualities within each recapitulation (both live and digital) became instructive of how and why the dancers moved.

Furthermore, as this was happening the dancers were also becoming acutely aware of a shift in orientation, especially as her image was manipulated by changes in perspective for example. Thus, her resulting image appeared almost "alien" (ibid.), but somehow utterly integral and connected to her present self. Consequently, what transpired was a sense of something else, or other — or as Nancy describes it — as the feeling of the spirit, which was affective beyond an experience of just moving one's body to accomplish the task. Consequently, as the dancers repeated phrases of movement they became intrigued by the residual qualities of how it felt to perceive their movements, as they became manifest in both live and digital form. A reflection I documented from one of these explorations is useful here:

> I remembered the strain in my neck and the tension needed to maintain my positioning, and how I moved from one movement into the next, but I did not have the same experience as my movements were then (re)formed through my digital representation. The intensity of my focus and the sense of lightness and lack of tension visible in the digital me was extremely powerful and it made me want to breathe. As the task continued the qualities inherent in the digital image or dancer (here I note that I refer to the image of me as somehow other) became important as she was firstly observed and then translated into my grounded physical sense of placement. Those visible features, such as the sense of lightness in the digital dancer began to penetrate what I was doing. What became important was the digital residue, or the memory of moving via the digital echo, which changed or affected the dynamic and qualitative impulses for the next move. (Francksen 2011)

This, along with many of the initial discoveries, made it clear that the methodology for moving needed to encompass a responsiveness that was somehow caught between moving physically and being captured digitally.

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[20] See Mary Oliver's article *Me-but-not-me: Teaching the digital double* 2012, for a further discussion of moving with the digital double.

Moreover, such an experience helped the dancer to think about her movements beyond a conception of the body as separate to the image, which felt more like a porous body — a body-as-image-as-self (this also accords with a later discussion of the image-sound-body, which will be discussed in *Modulation_one* in chapter 3). Similar to the inside / outside described by Nancy, this offered the dancer a way to think about the mediated as something which was active across and through her bodies, plural. Or, to return to Manning: "Movement is a process of individuation where matter and form remain in flux, virtually shape-shifting into malleable environments" (2009:18).

In consequence, the reappearance of a previous movement, as it permeated and fused with the live material, is where something transformative started to take place. Accordingly, as the dancers became more intrigued by their other selves, they became less concerned with moving on a horizontal / vertical plane, in order to consider movements that were less grounded, and less obvious in a purely physical sense. The impetus was rather to try and move up and away out of the space both physically and digitally as they effectively "shape-shifted" (ibid.) between their live and digital manifestations. As described in the earlier reflection, the difficulty of being human and grounded through gravitational forces became very frustrating. As Emilia Robinson also described, "There's something quite awkward in having to move this way… It's interesting to notice the fact that I can't decide – screen or body" (2012). Hence, as the dancers began to consider characteristics such as quality, force and rhythm, as their perceptions became transformed through the digital, they were much more intrigued by their experiences over and above adhering to the prescribed loops. The idea of the body-as-image-as-self is supported further by Portanova who discusses, "extensive abstraction provides a sort of detached, separate, or divided point of view that immediately presents itself as diametrically opposed to phenomenological observation. It is indeed an experience, but one in which the body is not the only source" (2013:11). In accordance with Portanova, Emilia's altered sense of gravity, as it became abstracted through the digital, led her to

consider what she was doing as somehow related but also awkward. Thus, it was through an abstracted view of her movement, as it reappeared digitally, which helped to establish a more interesting set of choreographic problems.

In response to the idea of the body-as-image-as-self, the dancers then began to seek for ways to disrupt, or to stimulate further changes, within the system. As Hagendoorn described, the dancers were quickly searching for ways to create more complex patterns and relationships. Subsequently, the process became defined by their attempts at creating more complex situations that would set them off kilter, or place them in an unfamiliar relationship to themselves and each other. Similarly, as Hagendoorn notes, "Rather than prescribing every single movement, these techniques can be regarded as tools for solving the problem of 'which move to make next'" (2002:221). Comparably, not only did the system in *Shift* lead to interesting methods for moving, it began to extend beyond the idea of problem solving towards a situation which was far more affective in terms of the dancer's perceptual sensibilities. Responses such as "not knowing where my body was" (Francksen 2011) began to address some of the key philosophical questions described earlier in chapter 2. As Manning states,

> When a movement becomes habitual, its durational force is background to make space for its capitalizable economy in the time of the now. Get to the bus stop, to the coffee shop, to the store. Endpoint is everything. Everyday movements are reduced, compacted, overarticulations muted by overarching directionality and predimensionalizing. A dancing body, on the other hand, learns to stretch out the force of duration, to express incipience, making palpable the force of form that is movement's procedural intensity. (2013:39)

In other words, the experience of engaging with the system was far more to do with what might be possible, or more importantly impossible, besides creating movements into fixed habitual forms (Manning's endpoint). The body-as-image-as-self thus became more intense because the procedural nature of the task gave way to an alternative mode of expression, or as Manning suggests here as a "procedural intensity" (ibid.). This is supported further by Nancy, who states,

> The signifying body – the whole corpus of philosophical, theological, psychoanalytic, and semiological bodies – *incarnates* one thing only: the absolute contradiction of not being able to be a *body* without being the body *of a* spirit, which disembodies it. (2008:69)

Nancy's notion of the signifying body has been useful in the context of my own analysis to help describe the force, or the will of the dancer to move beyond her status as flesh and bone. The idea that she became disembodied through her spirit, therefore posits that her digital manifestation was not merely just a result of a technological effect, but was part and parcel of a strange entanglement as a "body *of a* spirit" (ibid.). Particularly as the residue of a previous movement as it reappeared in digital form became entwined in her thoughts for what might materialize next. As such, the dancer's experience could be described as a process of becoming disembodied through the image. However, this was not seen as a negative result, rather becoming disembodied can be likened to Manning's discussion of Étienne-Jules Marey[21]. In a discussion titled, *From image to intensity* she describes,

> When we see-with, what we perceive is the feeling of intensity. We feel intensity without seeing its actual form. The feeling of intensity coexists virtually with what actually appears. Intensity is of duration, not measure. Intensity has no extensive magnitude – it cannot be conceived as separate from pure experience. (2009:96)

Somewhat different to Nancy who discusses the spirit in terms of a higher power (that of God), Manning's notion of intensity, as she describes here, also directly relates to the dancers' experiences of being somehow off kilter. Similar in essence then to Nancy and Manning, I too argue that the purpose of moving in *Shift* was not just about exploring the physical properties of moving in response to the loops, but was concerned with an intense experience of bodies and images as they appeared in relation to one another. Initial explorations were easy to relate to in terms of a physically grounded body moving next to/beside a mediated version. Yet, the explorations began to ask the dancers to reconsider

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[21] Manning discusses Marey's machines, which he designed to measure the internal structures and internal rhythms of the body through graph-writing instruments in the late 1850's. His later works developed into paintings and films.

the body in ontological and perceptual terms. This was a very exciting moment and presented a real conceptual shift. Consequently, they were not only in dialogue with themselves, each other and their digital echoes, they were beginning to experience something more like an essence of the dance[22], or indeed its "spirit" (Nancy 2008:69).

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[22] See also Susanne Langer's discussion of the dance's body where she states, "The dance is an appearance, if you like, an apparition. It springs from what the dancers do; yet, it is something else… But these powers, these forces that seem to operate in the dance, are not physical forces of the dancer's muscles, which actually cause movements taking place. The forces we seem to perceive most directly and convincingly are created for our perception: and they exist only for it… Anything that exists only for perception, and plays no ordinary, passive part in nature as common objects do, is a virtual entity" (1951:341-42).

## 2c. The gaze

One of the most significant features, where this essence or intensity was felt most profoundly, was when the dancer's digital self was seen looking up through the floor and out into space (see figure 5 below).



Figure 5: *Shift*. Photography: Andy Elston 2011

This was very arresting not least because the dancers were afforded multiple options for seeing and observing. This created a very intimate and engaging connection, which resulted in movement decisions that allowed them to look back upon themselves and upon each other. Looking back into your own eyes was an extremely affecting experience for all involved (including audience members). This became all the more intriguing as the duplicated versions of self connected with varying perspectives and viewpoints from the other dancer's projected image of her gaze also. Accordingly, the dancers were able to manipulate and explore how both her real self *and* her mediated self, although again over time she came to think of these two things as one and the same thing,

could effectively see across live and digital dimensions. An experience I documented from a performance of *Shift* is useful to illustrate this.

> I remember a very powerful and intimate experience during one of the performances of Shift, whereby I was exploring how I could look beyond the performance space to see the audience. Because of the looping structures, I knew that my imminent image would be projected back into the adjoining half of the performance space in a few moments time. I also knew that by adopting a particular position and by looking into the camera at a certain angle, it would appear as though I was looking up, out of the floor at those audience members who were positioned closer to the alternate projection to the one I inhabited. I also knew that once the capture loop had finished I could then move to the other side of the performance area where I could both look at them via my digital self as simultaneously as I gazed upon them in real-time. As I looked up and into the camera I tried to think about seeing them, even though, at that moment, I was looking up into the lens of the camera. As the loop finished and I stepped into the adjacent area of the performance space, I remember seeing my digital self looking up and across at one particular audience member. Noticing that they were effectively looking at me, albeit at my digital self, was extremely powerful. This particular experience was intensified even further as that same audience member then instantly looked up and met my gaze in real-time. My heart skipped a beat as our eyes met again, having seemingly met only moments earlier digitally. The connection we felt in that moment was palpable. I later found out during the post-show discussion that this experience was just as powerful for the audience member as it had been for me. (Francksen 2011)

The intensity of the gaze therefore began to dictate further behaviours, which resulted in further changes to the ways in which the dancers experienced their emerging bodies. The eyes are particularly well known to elicit impressions of the soul, or the spirit. This corresponded to the very strong feelings the dancers had in terms of the almost sacred nature of the face and the eyes. Not least as each dancer independently felt the need to avoid, at all costs, obscuring their own, or the multiple versions of each other's face. In terms of the second question of the thesis, in what ways can a dancer's perceptual and interpretative decision-making process transform when she is immersed in an environment with simultaneous projections of self? the gaze began to confront what has been described as the cold and alienating character of technology. In this scenario, the strong connections between self and other, as they were able to see via the live

and the digital, resulted in an intense and highly affecting experience. In many ways, what happened can be described in similar terms to Carol Brown's *The Changing Room* (2004) where she states in relation to an embodied interface where her dancers move with virtual objects, "Similarly for the dancers, their attention shifts and alternates between live and virtual presences as they respond and project the sensations within the room and communicate these to the audience creating a triangulated circuit of interactions" (2011:93). Interesting to note here is the shift in attention between live and virtual presences. The gaze, as a subsequent concern that was inspired by the body-as-image-as-self, also helped the dancer to move beyond a concept of her body as something separate to the digital.

*Shift* therefore gave rise to a number of key principles. In terms of the stated sub questions under the main concerns for the study (see *methodology* in chapter 1, section 7), I was able to determine a number of givens. In terms of de-coupling the prevalence of technology over the dancing, *Shift* did empower the dancers to a degree, in the sense that they felt compelled to initiate and change not only the parameters of the repeating loops, but importantly they began to impose their own sets of rules and principles as part of the system; namely the possibility to disrupt it. What arose from this was the feeling that they could engage in an embodied and creative encounter with the technology beyond being merely useful as a trigger to initiate an image. However, the prescriptive nature of the loops, and the repetitiveness of having to respond to each new recapitulation, meant that the technology was still, to a large extent, defining many of the quantitative limitations of the piece. In terms of destabilizing the normative conceptions of bodies and images, the body-as-image-as-self offered an alternative direction for thinking about moving beyond the more dualistic and prescriptive relationships described in chapter 1.

**2d. Anticipation/predictability**

The relationship between ones mediated self and other, and the potential connection through the gaze, proved to be the most successful outcomes from *Shift*. However, there were a number of considerations / reflection which, although less successful were instructive for the next iteration *Betwixt and Between*. Due to the nature of the delay mechanisms, the looping structures meant that the dancers had to constantly set the looping mechanism in motion. This tended to halt the flow of any subsequent movements, which proved problematic in performance because the dancers had to momentarily pause whilst they waited for the next loop to begin. What then tended to happen over time was that the waiting became more and more obvious and predictable. Generally, although there were some very engaging moments in *Shift*, it became increasingly difficult to work against the predictable nature of the loops, particularly as the dancer very quickly learnt how to anticipate and then predict the resulting outcome digitally. The fixed nature of the loops ultimately placed too many restrictions on how and when the dancer could work with and then beyond the system. Having established some very profound moments when the dancer was able to reach beyond the thresholds of the live and digital, as exemplified in the body-as-image-as-self and the gaze, the anticipation of the loops began to have a negative effect on the work.

Similarly, it was clear that the experience of performing in the environment could be far more absorbing than the experience of watching it, particularly given the predictable patterns prescribed by the loops. By observing Emilia and by drawing on my own experiences, it also became clear how difficult it was to maintain the concentration required to keep up with the loops and to continually generate new material. Albeit, exploring the visible features inherent in the digital, along with the gaze, did ask the dancer to behave in interesting ways. The different relationships between the varying multiplications of two (dancer and dancer, screen and screen, dancer and screen etc.) only served to enforce a more dualistic exchange because each loop only ever presented the

initial cause, i.e. an action performed by the dancer, followed by an effect, be that the immediate replay or a delayed loop of the same material. What was missing was a more complex set of questions or problems, as Cvejić describes as choreographing problems (2015b), to engage with.

**2e. Issues arising.**

Two main issues therefore arose. Firstly, how might the system be developed to provide a more nuanced and changing environment, and secondly, how could we move beyond the predictable nature of the system. Those identifiable moments where the digital reflection moves beyond an initial mapping and representation was where the work was most successful. This was based on continually (re)presenting a multi-layered perspective of the live action as a means for developing a more rhetorical relationship with the image. The system, which repeated loops of material, meant that the work was already predisposed to patterns of predictability. The inherent nature of using delay effects revealed the processes that were in place and over time resulted in a predictable environment, which did not provide the dancer with enough variation to remain intrigued. This was also proof of the adaptability of the dancers; their skills and adeptness at predicting and responding to the loops far outweighed the nuances and make-up of the system. Therefore, as the dancer became more adept at anticipating her digital echo, the initial intrigue with trying to determine how the digital other might affect her movement decisions was replaced with a sense of knowing. In effect the system became too predictable. This suggested that the environment needed to be complex and rich enough in order to keep the dancer asking questions, but also readable in terms of allowing the body-as-image-as-self, and the gaze to continually emerge. Consequently the need for shifting both the technological landscape and increasing the potential for new encounters is what provided the key questions for the creation of *Betwixt and Between*.

### 3. Practical 2 ~ *Betwixt and Between*

The second iteration, *Betwixt and Between*, was developed in order to provide opportunities for variation both in terms of the changes that might occur gradually over time within the system, as well as applying further manipulations to the characteristics of the image. Also, providing a less predictable means for exploring the concept of the body-as-self-as-image and the gaze was key. Having determined that the tight looping structures and the concentration on just the live-feed set up too much of a restricted environment, *Betwixt and Between* was designed using a number of different patches within Isadora. As the process for developing the system progressed, my skills and abilities in programming the looping mechanisms also became more proficient. To that end, I was able to manipulate both the timing of the loops, as well as influencing a greater degree of qualitative variation, such as the degree of saturation within the image for example. The decision to use pre-recorded footage[23] was also made in order to help construct a more complex set of images. This was done in response to the consistency and regularity of the live-feed experienced in *Shift*.

Much like *Shift*, *Betwixt and Between* began as a solo exploration, which later developed into a duet. Again, I was keen to establish my own sense of the characteristics within the environment as a soloist, before I tested and valorised my experiences with another dancer. I was able to work with professional dance artist Jodie Davis. Jodie would continue to dance with me in *Modulation_one*. Jodie also experienced the environments as a soloist, before we embarked upon our duet for C-DaRE and Mobilities. *Betwixt and Between* was performed at the IOCT (The Institute of Creative Technologies), DMU in December 2012, and as part of JAM 2013 - Journeys Across Media: The Body and The Digital postgraduate conference at the University of Reading in April 2013. It was also subsequently performed as part of C-DaRE's (Centre for Dance Research)

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[23] The footage consists of material captured during the first iteration of *Shift* back in 2011. The red dress worn in *Shift* is clearly visible. Significantly, this footage continued to re-appear in *all* of the subsequent works. This footage became affectionately known as 'The Red Lady'.

research seminar series at Coventry University in April 2014, and at Mobilities: The Dance Digital International Festival, Dance Digital, Essex at the University of Bedford, Bedfordshire also in April 2014.

In order to discuss the main findings for *Betwixt and Between* I begin with a description of the system and how the features of this environment developed from the previous work. This is followed by a discussion of Douglas Gordon's video *24-Hour Psycho* (1993), which is used as a case study to help analyse the significance of manipulating temporal changes within the environment as well as helping to discuss the idea of a body as a porous body. This then leads into a discussion of the key findings for this work under the title: The image: time, texture and quality time.

**System 2**

*Betwixt and Between* initially presented a solo dancer moving in front of and behind a transparent screen. Given the restrictions determined in *Shift*, particularly in terms of the gaze and the problem of moving on top of the image, which had been projected onto the floor, I was keen to try and explore other options for projecting. I had already decided that a wall-based screen was too prescriptive in terms of the usual presentational modes used in digital dance performance. However, the floor-bound image in *Shift* also became problematic because of the restricted performance area it prescribed. Similarly, the nature of the set-up in *Shift*, i.e. having the cameras rigged in the ceiling and the projection facing downwards, meant that the dancers shadows masked the projections, which also restricted her movement potential even further. Hence a means for bringing the digital out *into* the space was needed. This was addressed by sourcing a translucent screen material, which could be hung in the space with the dancers.

The material, which was housed inside two sheets of Perspex, therefore made it possible to back-project the image in such a way that the dancer could

access the space around and behind the screen (see figures 6, 7 & 8). A camera situated near to the dancer captured her movements and this data was then fed back through Isadora. The use of five LED-hanging lights, which were placed close to the camera, provided just enough light to capture the dancer's image. The set-up was functional and arose because of the practical constraints of needing to continue to capture live material, as well as presenting the dancers with the option to look beyond the screen. Technologically, the live image was then processed and combined with pre-recorded material, which was progressively changed using 3 Isadora patches over a period of 25-30 minutes. Further alterations, including how and when the looping mechanisms began and ended, then provided a more textural landscape for the dancers to explore. Further manipulations of the visual characteristics, including changes to the translucency of the image and the image's intensity, were also developed and explored[24].



Figure 6: *Betwixt and Between.* Photography: Michael Huxley 2013

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[24] This later developed into a two-screened version, with the introduction of a smaller screen – see figures 10 & 11.

Choreographically, the dancer was still required to explore her positioning in terms of the live capture loops, although this time she could remain in an upright position and could move in and out of view of the camera (this was not possible in *Shift* because of the placement of the cameras in the ceiling). She was also able to move around within a few feet of the screen, which also included being able to negotiate a 360-degree parameter, which gave her more options for negotiating the space. The 3 patches were developed in order to change the content of the image using a combination of both the live feed *and* pre-recorded material. This aimed to address the need for developing a more complex set of problems or encounters which the dancer could explore (see discussion of *Shift* earlier). Crucially, the patches also changed in their treatment of time, which also addressed the repetitive nature of the previous looping system. Consequently, this offered the dancer 3 different progressive states of visual and temporal materials to explore and experience.



Figure 7: *Betwixt and Between*, rehearsal IOCT Dec 2012. Photography: Kerry Francksen 2012

The set-up for *Betwixt and Between* was therefore designed to give the dancer an evolving and changing landscape, which included some of the same characteristics as before (the live feed for example), but which also included altering variations in speed and duration, and importantly different assemblages of content within the image. Subsequently, this allowed her further options for engaging with the image, including the option to explore features in either her live material as it appeared in real-time, or alternatively she could engage with pre-recorded material. Importantly, the pre-recorded material was composed of images from previous improvisations. This extended the opportunities for engaging with ideas of memory and repetition, which had arisen in *Shift*. The movement content as a result began to depict certain traces (for me the memory of performing in *Shift* was still very strong), which developed on from previous ideas of both being able to move beyond the screen (the gaze), as well as dealing with the changed qualities of the movement (inspired by the slowed speed of the image). For me looking up then became highly significant, which continued to be a dominant feature within all of my movement explorations. This had initially been inspired by having to look up into the camera, which had been rigged in the ceiling in *Shift*, but developed further in this work to encompass looking beyond the confines of the spaces we were performing in, in order to embody a sense of moving across live and digital spaces. Similarly, the sense of lightness described on pg.78 continued to inspire how the upper torso moved. This resulted in movement content that continually moved up, including sustained raises onto the balls of the feet, along with extended reaches of the arms above the head. Because of the direction of the gaze, how the upper torso continually arched and curved in response to moving the eyes, also became a central feature within the movements themselves.

Therefore, although the movement was never set, there were indicative traces that continually appeared and re-appeared. As such, each dancer began to find their own quality and range of movements, which began to define her

particular engagement with the recurring traces. Jodie's movements were concentrated on the curvature of the back, as well as expanding out into space (both in terms of physical space and screen space) by exploring extensions in her arms as well as exploring the gaze. Because of the positioning of the screens and due to the fact that each dancer could prescribe their own choice of material in the live feed, my movements began to move along a linear plane, upwards, whilst Jodie's movements began to move on an axis, which twisted in and around her centre of gravity. By slowly twisting in her back, Jodie became concentrated on revealing the musculature of her back towards the camera, which became a dominant feature for her. Our movements were by no means predetermined, but arose through the logistical process of aligning movements within the environment to activate a change (through the lens of the camera for example), whilst simultaneously engaging with the emerging qualities of both live and pre-recorded materials. Similarly, as the tempo changed, *Betwixt and Between* became more meditative and slowed in its rhythms. The specific treatment of time in the image therefore heavily influenced how the dancers responded in qualitative terms. As such, the dancers were able to attend to the character of the evolving patterns in a very different way to *Shift*.

Significantly because the resulting images were playing at either half speed, or at times even slower the dancers felt that they were able to explore how to be with their body-as-image-as-self, over and above just responding to the reappearance of the image via the looping mechanism. Being able to explore a developing relationship, as well as having space and time to appreciate the image's rich characteristic qualities, was key. Consequently, this had a direct effect on how the dancers managed their own internal rhythms, particularly in terms of how she might prescribe the trajectory of a movement across her body, or bodies, as she attempted to morph with her screen presence for example. Therefore, her intention was still to respond to, and explore further, any potential relationships or moments of exchange that might encourage her to

change her movement choices. But this time she was afforded more space and time in which to perceive such changes.



Figure 8: *Betwixt and Between,* rehearsals, IOCT April 2013. Photography: Kerry Francksen 2013

Meaningfully the sound, which was designed by composer Simon Atkinson, also became a significant influence upon the embodied reactions and subsequent behaviours, which arose in this work. For the sound, Atkinson re-worked a piece he had already composed, which was commissioned by SEAMS (Society for Electroacoustic Music in Sweden) called *Interiorities vi* (2012). As Atkinson describes,

> The work builds upon previous research (e.g. exploring musical temporality and spatiality through composition, multi-loudspeaker presentation, strategies for 'moving beyond' the hand and body in creating musical shape and motion)… Specific areas of inquiry include: gesture (notably prolonged or expanded gestures, even to the extent that some might understand the piece as a single, sustained gesture); the creation of a distinctive temporality; computer transformation, and subsequent organisation, of largely harmonic analogue feedback into more ambiguous and inharmonic sounds; and musical space (sound that emanates from electronic circuits rather than recorded vibration displays distinctive facets that are privileged. The organisation of complex internal beating phenomena is important). (2012)

Through what could be deemed serendipity in the first instance, and later through a more poetic and concentrated interaction between the evolving sounds, movement and image, this work established further possibilities for exploring alternative rhythms and qualities. By engaging further with the subtle shifts in the timing of both the image and the evolving nature of this soundscape, the dancer found herself immersed in an environment that was not only visually compelling, it also gave her an aural dimension to explore also.

Similarly, although I was responsible for all of the programming in Isadora, in this work I was fortunate to work with filmmaker Laura McGregor. Laura, who is a photographer and filmmaker, has a long history of making and teaching video dance and I have worked with her on various projects since 1999. Through our long history of making dance for the screen together, we have developed a particular methodological approach to image and movement production. This approach consists of capturing movement material using a handheld camera, with Laura moving in the space along with the dancer. Much as McPherson describes, "How the camera moves in relation to the dancer or dancers, and the space they are in, has great impact on the viewer's experience of the movement" (2006:31). Through joint exploration, and by drawing on Laura's expertise for understanding how and when to move in relation to the dancer, we developed a means for capturing a particular quality or trajectory of the movement through close-up and medium-shots. Because the dancers were concerned with how a particular movement sequence had become changed through the slowed rhythms and pace in the system, it also became important to consider the qualitative nature of the captured images also.

Figure 9: Film shoot *Betwixt and Between.* Kerry Francksen 2014

This entailed Laura making creative and editing decisions whilst she was moving in the space with us. Paying further attention to the developing characteristics also helped to refine how the footage was captured. Thus, by considering how best to present a particular view of the body, in particular the upward trajectory of my movements in contrast to Jodie's curvature in her spine for example (see figure 9), both Laura and the dancers became concerned with the intrinsic qualities of each movement as it played out both in terms of its temporality and in terms of how it was framed by the camera. This also helped me to refine the ways in which Laura's footage could then be manipulated further in Isadora.

### 3a. The body: Porosity

The strongest discoveries in *Shift* were the body-as-image-as-self, along with the palpable connection of the gaze. Such findings pointed towards a more intimate and permeable sense of self and other, which had begun to address how best to empower the dancer beyond her otherwise prescriptive role. However, the technological interface still dictated many of the formal structures of the environment, most notably in terms of its regularity. From the point of view of having more variation within the system, it became important to explore a more diverse arrangement of bodies, images and sounds. As discussed, the regularity of the live-feed in *Shift* — in that once the loops had been established they did not change — had become problematic. This was due to the consistency and uniformity of the looping mechanisms. In order to address this, the patches for *Betwixt and Between* were programmed to allow for a more gradual unfolding of material through temporal and textural manipulation. This was done by applying generative tools that enabled slow cross-fades between image states, in addition to layering the images one on top of the other. Significantly, the images themselves were also slowed at varying degrees, which provided further diversity in the image (the speed of the image was also shaped by the dancers in terms of their movement choices in real-time). This represented a real shift in terms of the qualitative nature of the environment. Most notably, the gentle ebb and flow of the images, as they morphed in and out of varying combinations and rhythms, offered further options for the dancers to respond to. The overall structure of the patches therefore gave them enough time to acknowledge the varying visual properties of the image, as well as allowing them space to move in and around the performance environment.

Manning's description of William Forsythe's definition of counterpoint, which he discusses in terms of the relationship between movement and time, is particularly useful here.

> Forsythe explains: 'syncing is not what's important, in the sense of matching an already known timing'... Counterpoint is not the activity of an individual body – it is the activity of a relational field through which

movement moves… movement-moving is felt by the dancers as a moment of uncanny synchronicity. Synchronous because the collective movement is slightly off, attuned to but in the difference of movement's capacity to invent. (2013:207-208)

In the context of the dancers experiencing a similar temporal shift in *Betwixt and Between*, being able to recognize a previous movement, whilst simultaneously engaging in the flow of a new movement, meant that her experience became strangely synchronous, but not in the way it had in *Shift*. Rather, as Manning describes, she became attuned to such a process by recognising the differences of the "relational field through which movement moves" (ibid.). Thus, as her movements moved across live and digital time zones (and arguable spatial ones too), she became acutely aware of her "uncanny synchronicity" (ibid.) as she appeared simultaneously in both live and digital space. This is supported further by Portanova who mentions that, "the creativity of digital technology derives from the abstract but very peculiar potentiality that stands behind its materiality, namely the idea to cut things (into bits, pixels, points, or dots) and recombine them, ad infinitum" (Portanova 2013:8). Through what felt uncannily synchronized as well as the possibility to recombine her sense of the evolving trajectories of her movements ad infinitum, made for a more affective relationship.

As the work continued to develop, the evolution of the images characteristic features also became an important part of how the dancers responded to the environment. Hence, not only was the dancer's experience changed through her perception of time, the somewhat strange synchronisation of materials also began to expose further characteristic qualities (texture, tone, luminosity etc.). This, along with the changes in speed would become the two most significant developments in *Betwixt and Between*. In order to analyse these two areas further the following section begins with a discussion of Douglas Gordon's installation *24-Hour Psycho* (1993), which draws on the writings of Scholar Mark Hansen. This helps to introduce aspects of time, texture and quality, which is followed by a discussion of the perceptual and interpretative

decisions made by the dancer. This addresses the second and third phases as part of the overall methodology (see chapter 1 section 7).

**3b. The image: time, texture and quality**

Douglas Gordon is a video and installation artist who is recognised for his desire to disrupt his audience's perception. Significantly, he manipulates the image in such a way as to elicit an embodied reaction.  My own experiences of his work, in particular that of *24-Hour Psycho* (1993)*,* are reminiscent of the immersive qualities I have felt in my own work. In terms of his treatment of time, I have therefore found it useful to use Gordon's *24-Hour Psycho* as comparative case study.

Gordon's *24-Hour Psycho*, which is a re-appropriation of Alfred Hitchcock's seminal film *Psycho* made in 1960, quite literally presents the film over a period of 24 hours. The film, which has been slowed to 2 frames per second, was projected onto a double-sided screen, which was hanged within a gallery setting. The audience are invited to observe the film as it unfolds over the course of 24 hours. By slowing the film to such a speed it was therefore impossible for the audience to watch the film in its entirety. As Ken Johnson describes in an article titled *At MoMA, Douglas Gordon: The hourglass contortionist*, "Simply to change the length of a standard movie could be a liberating guerrilla strike against what radical theorists like to call the hegemonic order" (2006). What is particularly striking about Gordon's *24-Hour Psycho* is the simple way in which he asks his audience to re-consider the images content contrary to the normal doctrines of film. By decelerating the film to such a degree he was able to highlight other qualities and characteristics that might otherwise have less value in the context of the films narrative. Gordon's staging of the film is comparable with this study's intentions. A brief description of my experience of *24-Hour Psycho* is useful.

On arrival at the gallery I happened upon the installation just as the main character Marion (played by actress Janet Leigh) is seen driving through a torrential downpour, which results in her having to stop at the infamous Bates Motel. The scene, which originally lasted around 3mins (go to

https://www.youtube.com/watch?v=FSlo44VO-lE), presents a medium close-up shot of Leigh's face. The film cuts regularly between the shot of Leigh's face, to the passing lights of cars as they rush past her in the rain, which are only just visible in the dark. As the scene continues the rain becomes progressively heavier and we watch Leigh as she struggles to see where she is going. Over the course of the 3 minutes the traffic gradually disappears and Leigh is left seemingly on her own driving through the night.

Having seen the film I knew what was about to unfold, and before I had even sat down, I had an expectation about what I would see. However, as the film became almost immobilised due to its deceleration to 2 frames a second, I was immediately struck by the physical reaction of just having to stop. Thus, the speed at which each image painstakingly changed from one frame to the next left me in such a hiatus that I held my breath in anticipation of the next image. Importantly, I became acutely aware of the image's intrinsic form and shape. In particularly I was attracted to the delicate fan-like quality of Leigh's eyelashes and the bird-like way they gradually swept backwards and forwards across her eyes. I was also struck by the glistening quality of the windscreen which was reflected in her pupils; all of which I had never noticed before. In what felt like only a moment (although in actual fact I sat there for around 45 minutes, totally enthralled), the contrast in these textural qualities; that of her skin and its opposing texture to that of the objects which surrounded her; gave me a rushing sense of an emerging narrative, which did not correspond to the original film. Moreover, although there was still a tangible tension, I was drawn to the unfamiliar feelings and associations I was making in reference to the images characteristics. The experience of watching Gordon's version was no less palpable, but instead the intensity came from an examination of otherwise invisible details and qualities, and not because of the looming horror of what would normally unfold in the original narrative. Mark Hansen supports this further when he describes,

> Gordon's technical modifications of cinema are designed specifically to
> induce particular physiological effects: in various ways, his works submit

their audiences to experimentations that call into play – and thus call attention to – the body's mediation of the interstice or between-two-images. Accordingly, the time-image Gordon foregrounds is one that must be said to occur in the act of reception, in the concrete activity performed by the embodied viewer-participant as she grapples with the specific problematic staged in the various works. (2006:244)

By simply slowing the images down Gordon effectively opened up a perceptual gap in which his audience could experience additional features, which would otherwise be lost within the normative pace and rhythm of the overarching narrative. In such a scenario, the viewer was therefore presented with an unfamiliar turn of events. As a consequence, this then transformed the ways in which the audience ultimately experienced the meaning of the film. This relates back to Susan Broadhurst who proposed, "digital practices indicate an increased potentiality for new artistic creativity rather than emptiness… they indicate a redefinition of 'meaning'" (2007:15). The altered experience of the films meaning was directly attributable to Gordon's temporal treatment of the logic of the narrative. This resulted in an experience whereby his audience were able to perceive additional features within the image that would otherwise have been subsumed within the unfolding of narrative as Leigh drives towards her ultimate demise.

By correlation, the dancers in *Betwixt and Between* were also invited to consider the perceptual gaps, as it were, between their own action and any subsequent manifestations in the image because of the temporal nature of the evolving system. By directly mapping Hansen's description of an audience grappling with the time changes in *24-Hour Psycho* onto the dancers experiences of moving in *Betwixt and Between*, it became clear that her act of perceiving the "time-image" (2006:244), in so far as she was caught between initiating a loop and simultaneously remembering and thus responding, helped to foreground the importance of deconstructing a normative conception of time. It was therefore, through my recollection of experiencing *24-Hour Psycho*, that I was able to articulate a further characteristic for my methodology. Explicitly, by slowing the image to such a degree the dancer was able to, as Hansen describes, be "in the act

of reception" (ibid.). This also meant that she was able to experience further qualities otherwise invisible to her. Again, this is supported by Hansen, who describes,

> More significantly still, these twin lessons concerning the intrinsic excess of 'given time' are brought home to the viewer through the dynamics of affective anticipation… the viewer quickly finds her attention intensely concentrated on anticipating this moment of change; moreover, as the viewer becomes more and more caught up in the halted progression of the narrative, this process of anticipation becomes ever more affectively charged, to the point of becoming practically unbearable. (2006:243-244)

This links back to the previous discussion of anticipation in *Shift*, yet, here anticipation relates to an intense experience. Not, then, as a negative result of having to wait for the image to appear, which is what happened in *Shift*. As such, the process of anticipating what might emerge in *Betwixt and Between* became far more charged because she was drawn to an intense experience of moving in coalescence with materials through an alternative awareness of time. This is similar to what Hansen describes as an experience "that must be said to occur in the act of reception" (Hansen 2006:244). Although Hansen is referring to the almost unbearable feeling of waiting for the next image to appear in *24-Hour Psycho*, which was not so much the case in *Betwixt and Between,* the deceleration of the image prompted a similar affective experience for the dancer. Moreover, these changes were not merely to do with giving her enough time to see and then respond to the image. Rather, it was through the act of perceiving an alternate temporal state that drew her attention to the changing qualities and meaning of the image. Moreover, the image became so innately linked to her experience of perceiving and moving as a result, that it was no longer possible to just watch them unfold – the changing characteristics of the image itself had to be experienced.

In reference to ideas of presence described in chapter 2, it is useful to draw on André Lepecki, who suggests,

> If, to follow Phelan, performance is a 'manically charged present' in which the body constantly (re)presents itself as always being at the verge of self-

dissipation… then (one) must consider how is it that 'presence' challenges the very stability of 'the body.' This challenge might be said to constitute dance's unique relation to temporality and to the manifestation of the body and of presence as interventions in temporality. (2004:6)

Meaningfully, the interplay between bodies, which were otherwise present via an alternative realisation of time, meant that the stability of the body became fundamentally challenged. This was due to the temporal characteristics of the environment. Thus, the idea that a body is fundamentally unstable, and as such can never be present per se, offered the dancers further means for letting go of their belief that they were separate to the digital. As Manning describes, "There is no unified body. There are skins, receptive surfaces, gestural movements, desires toward another. The body is active potential, not tautology" (2007:61).

Figure 10: *Betwixt and Between.* Photography: Michael Huxley 2013

Principally, if we are to accept Lepecki's notion, following on from Phelan, that bodies are always "at the verge of self-dissipation" (2004:6), arguably bodies and digital media can be thought of and experienced as something which is both live and digital in nature. Such an idea is dependent on both the dancer, and to some extent the audience, letting go of the usual rules that codify dance. Similarly, dance's "unique relation to temporality" (ibid.), which in other words signifies that bodies will only ever emerge and continually change because they are dynamic, also freed up the dancers to consider movement making as something which keeps dissolving. This dissolving, or sense of a porous being, became manifest because the image was made unfamiliar through a reduction in speed. As a result, the sensation of being part of an emerging flow of materials was far more to do with the dancer's perception of the unfolding event, than it was to do with how she might make appropriate movement content for a particular choreographic purpose (see figures 10 &11).



Figure 11: *Betwixt and Between*, C-DaRE, April 2014. Photography: Kerry Francksen 2014

**3c. Issues arising**

In summary, the idea that she could remain dynamic removed the necessity for her to activate movements in order to achieve a technological result.  This placed her in an empowered position whereby she was able to think differently about her self and the materiality of movement, sounds, and images. This was attributable to the treatment of time, which evoked alternative qualities within the image. Thus, by de-coupling the dance and the image in this way the system inspired an alternative perception of time and space. In terms of the sub questions for the thesis, most notably in terms of all of the respective phases (see pages 50-51), her process for invention and discovery was thus opened-up. Because she was set free from having to activate movements in order to trigger a specific effect in the technology, her experience became more affective because she was able to think differently about herself and the materiality of her movements. Moreover, this began to address the possibility for a non-binary topography of movement, sound and image. As such, the idea of de-coupling the live and mediated through a perceptual shift in time, which resulted in a transformation in the images meaning, is what provided the foundations for creating *Modulation_one*.

**4. Practical 3 ~ *Modulation_one***

The third iteration, *Modulation_one*, therefore took forward the concepts of porosity, time, texture, and quality, as exemplified in both *Shift* and *Betwixt and Between*. This was done by considering bodies, images and sounds as intrinsic to a dynamic flow of gestures that had become interwoven through a particular treatment to the temporal and dynamic qualities within the system. For this work, the dancers were not only more aware of the inherent characteristics, but importantly they were able to engage with the work deeply, on both a perceptual and kinaesthetic level. What emerged was a scenario where the dancers were able to respond to the qualities of things, over and above focusing on producing suitable movements. Interestingly the process became a means for unfixing – or what the dancers came to think of as un-choreographing movement.

Although each work to date (*Shift* and *Betwixt and Between*) had been part of a continuous process, *Modulation_one* in many ways signified an otherwise finished piece of work, although again finished is used very loosely here because of the nature of the process. *Modulation_one* was performed at De Montfort University to a public audience on 2$^{nd}$ June 2014. In order to develop the concern of the body-as-image-as-self, and notions of time, texture, and quality the following discussion draws together some of the main characteristics of the work, which leads to a discussion of Vivian Sobchack's essay *When the ear dreams* (2011). Before I consider this, it is pertinent to set out the system for *Modulation_one* and to provide a brief overview of this works main findings.

**System 3**

*Modulation_one* was designed with a greater degree of particularity in terms of manipulating the images characteristic features within each patch. So, rather than just dealing with crossfades in a linear sense, the material in *Modulation_one* was programmed in such a way that each image began to prescribe its own differing rhythms and pulses. The crux of the set up for

*Modulation_one* presented two dancers within a larger performance area, defined by the positioning of two transparent screens (see figure 12). Images were projected on to both screens, which altered and varied temporally, as well as in terms of their visual characteristics, again over the period of around 20-25 minutes. For this work it was important to explore the shape and form of the image in terms of its construction. The intensity of the gaze continued to be an important feature, which was enhanced further by the deceleration of the images temporal rhythm.



Figure 12: *Modulation_one*, Atkinson & Francksen 2014. Photography: Laura McGregor

What this created was a sense that the images were not only changing temporally, as highlighted in *Betwixt and Between*, but that they could also change characteristically by seeming to pulse forwards and backwards within the screen space itself.[25] Programming a greater variation in the images luminosity and pixilation as well as programming the images to appear and disappear differently in terms of where the image appeared in screen space achieved this. Significantly, the edges of the screen provided a useful way of allowing the dancer's image to disappear out of view. This also gave her a

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[25] This was enhanced further through the transparent screen, because the image, which seemed to be floating with and alongside the dancer, reinforced the 3-dimensional shape and progression of the movement.

different perception of the images depth as well as its spatial orientation, which added to the complexity of the environment (see figure 13 below).



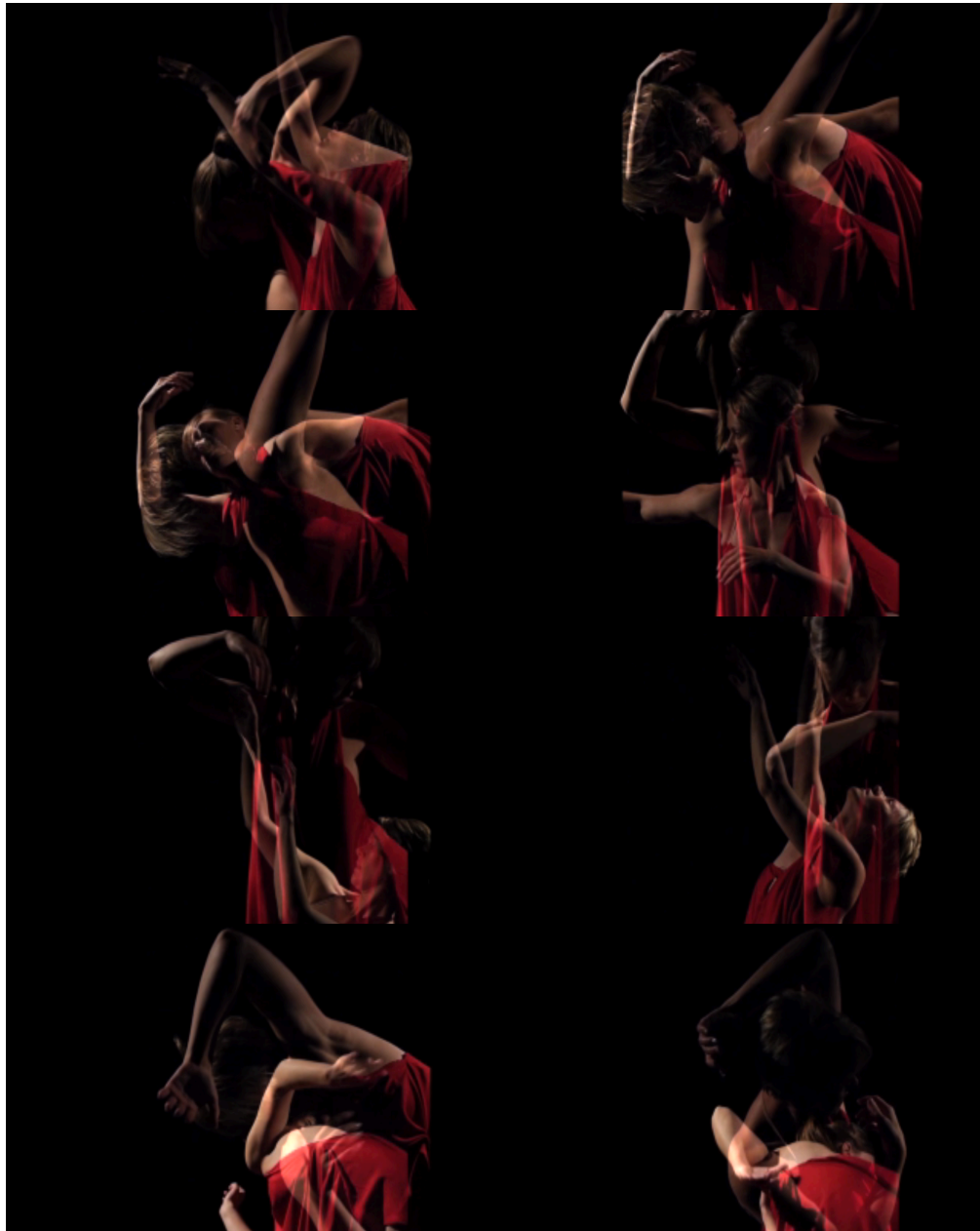Figure 13: Sequence of stills from the projected image, *Modulation_one* 2014. Photography: Kerry Francksen 2014

As a result, this made it purposefully more challenging to predict what might emerge. This had a positive effect, not least because it left enough room for a variety of potential connections to unfold across all of the material, but also provided enough of a trace to enable her to continually manage her movements

in relation to what was emerging. So, although the experience of moving in this system presented more complexity in the construction of the image, the dancer was able to stay attuned by drawing on her previous experiences as well as actively searching for new connections. This relates back to Hagendoorn's discussion of the need to provide sufficient complexity, which was discussed in *Shift*.

The nature and treatment of this system also advanced the idea that each constituent element could also change either on its own or as part of the system. In this sense all of the constituent elements (images, sounds and bodies) seemed to have a sense of their own agency, but crucially were part and parcel of a modulating system. At times the changes in timing, and the emergence of different materials (be that movement, images or sounds) was so subtle that it was initially imperceptible. However, the longer the system played out the more perceptible these subtle changes became. Each element, although adhering to certain sets of unifying principles, all had enough poetic potential to offer further moments of surprise and unpredictability. Intriguingly, what happened in *Modulation_one* was a strange marriage between refining and structuring material in contrast to creating a more fluid and transforming environment. This was intriguing, not least because the refinement and construction of the patches and the image, as well as the sophistication of sound and the management of the movement, all came together to create an environment that was not fixed. Instead, each element began to flow and pulse together to generate a highly charged and changing perceptual landscape. By way of analysing this further, I consider Vivian Sobchack's essay *When the ear dreams* (2011). Sobchack's discussion, which highlights a transformation of image and sound, is usefully applied to this works results.

**4a. *When the ear dreams* (Sobchack 2011): Events of image and sound**

In her essay *When the ear dreams* (2011), Sobchack eloquently problematizes some of the normative relationships between images and sound within Western popular contemporary cinema. Her critique aims to deconstruct the hierarchy between images and sound, in which she explores a "conventionally 'realistic' relation" (2011:121). Using her analysis as a springboard, I consider the ways in which an atypical synchronisation of materials, which builds on Manning's reading of individuation, and which also extends Hansen discussion of the "time-image" (2006:244) as discussed in the previous section, can inspire a transformed perceptual experience of moving in live-digital environments.

Sobchack's essay explores the relationships between image and sound by presenting how "the 'acousmatic' perception (in which cinematic sound is heard without its originating cause being seen on-screen) is rendered graphically as a visible appearance" (2011:114). To do this, she discusses the Dolby digital promotional sound trailers made between the mid-1990s and 2003. As Sobchack discusses,

> Dolby's promotional literature and ancillary reviews tell us that the trailers "combine stunning computer graphics with state-of the-art soundtracks," "show off the multi-channel format,"... and, perhaps most interestingly from a rhetorical and poetic perspective, "open people's ears in a new way" (2011:113).

The trailers, which highlight a particular unspoken assumption about the ways in which we are used to experiencing aural and visual information in our everyday lives, is presented by Sobchack as an alternative means for appreciating the relationships between images and sounds. Whilst Sobchack refers specifically to image and sound, many of the ideas presented in her essay can be usefully applied to *Modulation_one*. Moreover, Sobchack's acknowledgement of what she terms the "emphasis on the image as an event of sound and the advent of sound as an occurrence of image" (2011:135) provides a useful springboard for examining an event of image, sound *and* movement.

Popular cinema has clearly made good use of "the 'acousmatic' perception" (ibid.). Certainly, there is much to behold in such a connection, as Sobchack states, "We've all seen the light shows, the zooming, humanly impossible, ersatz camera movements, the quasi-atmospheric yet sharp-edged chiaroscuro many times before" (2011:126). Yet, what becomes significant through her discussion is that such an orthodox relationship between images and sound, that is to say that image is seen as the dominant aesthetic and sound is used to maximise the images intention by augmenting and solidifying its meaning, in many ways stops us from experiencing alternative spaces – spaces that open up to the imagination in different ways. So, contrary to the visual dominance of cinema, Sobchack offers an alternative perspective on the "'spontaneous and irresistible' relationship of audio-visual simultaneity that Michel Chion sees as a gestalt 'weld' of sound and image" (2011:120).

In her discussion she describes the Dolby trailers in relation to the Lumière Brothers' famous silent documentary film *L'Arrivée d'un train en gare de La Ciotat (The Arrival of a train at La Ciotat station)* back in 1896. The train, as it was seen moving directly towards the camera, was reported to have visibly shocked some of its audience members. In response Sobchack describes,

> Dolby's 'Train' is of another sort than Lumière's, however. It emerges not as an objectively silent image that generates sound only in the subjective imagination but, rather, as a subjectively resonant image generated by, and from, objective sound. Here, the *objective ear subjectively imagines the image*. That is, Dolby's 'train of shadows' (often called 'Ghost train') comes into visible being on the screen in a temporalized, reverberant, and echoed response to an inaugural sounding-out that calls the image forth in the formal vagueness of something much like a dream or memory (2011:117).

From her discussion it becomes clear that the presence of sound, as the key stimulus for provoking a more embodied response, is not only significant for beginning to detach such dominant relationships, but importantly it releases the

viewer to experience film from a more kinaesthetic and embodied position.[26] In point of fact, her confrontation of the "logically causal – and conventionally 'realistic'- relation to the image's specificity" (2011:121), through her articulation of the Dolby sound trailers,[27] enables her to offer an alternative view. This view purports that sound opens up an imaginative space in which the image can continue to reverberate, but more crucially not to dominate. Or, otherwise said relative to *Modulation_one*, the connections between bodies, images and sounds can merge because they are conceived of, and connected, beyond more conventional methods or associations.

Based broadly within a phenomenological reading of cinema, what Sobchack's essay reveals is the significance of what *cannot be seen*, over and above what *can be seen*. Her descriptions of the poetic reverberations of the Dolby sound trailers, causes a response (even by reading, let alone watching the trailers themselves) that taps into a sensory experience, whereby her account of the trailers are not only figurative but also expressive in their representation. This is done in such a way as to ask the audience (or reader) to consider what is evoked beyond the image. Much like the idea of a porous body as it extended beyond the flesh of the body, and beyond the screen in *Modulation_one*, the importance of signifying what is not visible, relates directly to this work. Furthermore, the dancer's perception of her body as something that is always "at the verge of self-dissipation" (Lepecki 2004:6) correlates with Sobchack's destabilisation of a conventional relationship between images and sounds. What Sobchack posits is that by reversing the pre-eminence of seeing over hearing, what she defines as "ultra-hearing" and "ultra-seeing" (2011:113), such conventional assumptions that place the image as the primary mode of

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[26] Although films that combine images and sound in a more conventional way can of course also provoke real physical reverberations in the body – see Sobchack's discussion of the "film's body" (2004:66). The point being made is that a recognition of an alternative, or a different sensibility for the ways in which images and sound can come together, beyond more conventional means, offers a platform for rethinking the relationships between images, sounds and movement.

[27] With the exception of Dolby's Stomp trailer, which Sobchack describes as combining both the sound and the image in a highly synchronized way (2011:126).

perception can therefore be challenged. This is done through a less conventional assemblage of material, where sound is not just supportive, but becomes instrumental in stimulating an affective and embodied response. As Sobchack mentions, "Indeed, the desire to mark *sound as visible* rather than the *visible as sounding* provides the main impetus" (2011:114-115). What Sobchack describes is a reversal of the dominance of the image as the main indicator of the unfolding narrative (specifically in the Dolby trailers whereby the audience hears the imminent arrival of the train before anything is actually seen on the screen). In many ways this accords with Hansen's description of Gordon's temporal treatment of *24 hour Psycho* where his audience become drawn to other features in the narrative of the film, which would otherwise be invisible. Similarly, in Sobchack's analysis, the viewer attends to what might then become visible without actually seeing – hence the imagination is called forth because the sound becomes representative of the image. I would also ague that the imagination is called forth in Gordon's work in a similar fashion. The image, as and when it does appear in the Dolby trailers, is therefore prefigured by the characteristics of the sound, which in turn provides additional information about what is then perceived within the characteristics of the image.

Similarly, the dancers in *Modulation_one* were also able to attend to the characteristics of the environment in a similar way. Most notably because the temporal nature of the work called forth alternative rhythms and perspectives, which changed variously between the elements of dance, sound, and image, much as Sobchack described as a reversal of the dominance of the image. This enabled her to perceive the work outside of the normal set of boundaries for making digital dance performance as described in chapter 1. By the same token *Modulation_one* also called forth the potential to imagine a connection because the elements were also less conventional arranged and significantly not always initially discernable. The fact that the image appears imperceptive, as did the sound, the evolving relationships left both the dancer and the audience with an opportunity to effectively fill in the perceptual gaps.

Sobchack's discussion of the phenomenological relationship between image and sound is therefore useful as it is triangulated with performance also. What this work both draws upon and extends is Sobchack's hypothesis that a "poetics of sound-image / image-sound relations" (2011:114) can encompass a poetics of *body*-sound-image / *body*-image-sound relations also. As she describes, because the sound in the Dolby trailers calls forth the image in a less conventional manner, their impact becomes more kinaesthetic and embodied. This is because,

> In the relationship between sound and image in the trailers, there is indeed a blurring of communicative modalities that, as Brophy says of music, 'are not only juxtaposed, sequenced or related to one another but are also able to be evoked within and from one another via the practice of polyphony, transposition, and modulation' (ibid.).

As such, the de-coupling of images and sounds, in so far as the image and sound's dominance was reversed, created a strong embodied reaction because the relationships that arose were atypical. This again relates directly to the sub-questions of this thesis, particularly in terms of removing the necessity for the dancer to activate a technological response, and by opening –up a fresh perceptual experience for the dancer whilst moving with simultaneous projections of self (or self-as-other).

Moreover, the acousmatic[28] landscape, composed by Simon Atkinson also poetically brought together sounds that were not representative, i.e. recognised as the sounds of instruments or known sounds, such as the breath of the dancer. In fact the sonic landscape was designed to elicit an experience of the spatialisation of sound, where undulating tones and rhythmic changes in pitch moved to create a plethora of shifting sounds that quite literally repositioned themselves across and though the space. Crucially then, the role of the dancer was not to dance with the images or to the sound, rather she was invited to observe and respond to an ever shifting and evolving landscape, which arose

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[28] See http://ears.pierrecouprie.fr for Pierre Couprie's definition of acousmatic sound.

from an emergence of images, sounds, tones, gestures, qualities and so on, as they became characterized through an atypical relationship. Importantly, Sobchack's emphasis on a re-conceptualisation of such relationships, explicitly through a more atypical connection of creative materials, suggests that the act of moving could also be thought of as an occurrence of the advent of image and sound (to coin Sobchack's earlier phrase). In effect a re-conceptualisation of such conventional associations provides opportunities to engage with mediated environments via more amorphous and interchangeable means. As Sobchack posits,

> The paradox of the Dolby trailers is that – as cinema – they must promote an attention to listening not only by sounding the invisible but also by visualizing it. In this regard, the invisible (and off screen) 'acousmatic imagination' of the Dolby trailers provides a compelling and compressed on-screen visual glossary of what are acoustically perceived to be sound shapes, sound aspects, and sound effects. (Indeed, as I first watched them, I distinctly remember wondering: 'How does sound look?') (2011:115)

Here listening implies something far more complex and nuanced than just hearing with ones ears. The experience of being-with the image and the sound in *Modulation_one* had a similar effect. This also echoes with the discussion of the gaze in previous works. In this case, gazing became a means for moving beyond just seeing, to something far more affective.


As Sobchack continues, "attentive listening… (is) always in temporal motion and dynamic modulation, [this] is the 'sonorous being'" (Sobchack 2011:118). Certainly, the idea that listening attentively (I take this to encompass listening in a truly embodied sense) is an act that is always *in* motion also reflects many of the qualities that have been exposed in my own work. Thus, if we recapitulate the sonorous being, as it has been understood and experienced by the dancer, it could be argued that what is at stake is more akin to, "A tuning not of content but of expression-with" (Manning 2013: 11). The poetics of a body-sound-image / body-image-sound relation, then affords the dancer an opportunity to work against the apparent dominance of the digital because her "expression-with" (ibid.), is concerned with experience and not because she is

tuning her movements in order to actuate a technological result. Although of course, her ability to remain attentive and dynamic was absolutely tuned. Consequently, the hierarchy between bodies, images and sounds became dismantled.

The sound shapes described by Sobchack therefore promote – in cinematic terms, and, for the purposes of this study, for the dancer – having to experience the work from a truly somatic and embodied position. Again this accords with Hansen's notion of the audience having to grapple with their experiences of Gordon's work. By questioning such dominant relationships, where conventionally realistic modalities are challenged, I also argue that it is possible to move beyond the traditional "gestalt weld" (Sobchack 2011:121), particularly whilst moving in digitally rich environments.

**4b. Issues arising**

In summary, a recognition for such hegemonies, specifically from the point of view of the dancer, has enabled a re-conceptualisation of the act of moving. Moreover, such a scenario, as it has been provoked in my work, asked the dancer to rethink her relationship to images and sounds in a fundamental way. By developing her understanding firstly of her role in such mediated environments, and secondly, and most significantly, by conceiving of her movements more fluidly amidst such imaginative and affective landscapes, she has been able to enact movement across thresholds and across borders. Conceiving of the poetics of a body-sound-image / body-image-sound relation, where the relationships between materials are not necessarily welded to each other in more conventional ways, has empowered the dancer to challenge the dominance of the digital. Likewise, the statement that the image and sound (and I would add in here movement) are no longer intent on "anchor(ing) sound to the image much more conventionally" (Sobchack 2011:120), meant that a more intimate and interchangeable relationship was achieved because of how the dancer attended to what was less conventionally synchronized, or as Manning would describe as an "uncanny synchronicity" (2013:208). Crucially, the dancer in my own work was not merely part of a situation where bodies, images and sounds were connected through synchronisation, rather it was through the atypical relationships that arose between all of the materials, which brought about a perceptual and experiential transformation. Such transformations can thus be characterised as a concept for live-digital dancing.

# Chapter 4

# Intimate bodies and technologies: Concluding remarks

**1. Addressing the problematic relationship**

In response to the two main questions of the thesis: How can dance within media-rich environments avoid the trap of the dominance of the digital, and In what ways can a dancer's perceptual, and interpretative decision making process transform when she is immersed in an environment with simultaneous projections of self, what has transpired through the practice is a methodology for synchronizing movement, image, and sound as part of a non-binary assemblage of materials. Meaningfully, such an assemblage has enabled the dancers to be present as part of a dynamic and emerging system. This synchronization is not of the type described in chapter 1, whereby movement material is synchronized to work in tandem with a technologized effect or outcome in performance. Rather, bodies, images, and sounds, as they became transformed through this work, turned out to be "uncannily synchronized" (Manning 2013:208). This transpired through an exploration of alternative temporal and spatial configurations, described most specifically through the concerns of: the body-as-image-as-self, the gaze and time, texture, and quality. These concerns, which appeared incrementally throughout the works, explore a particular treatment to the temporal and visual characteristics within the image (and in response to Atkinson's spatialised sound environments in *Betwixt and Between* and *Modulation_one*), which helped to transform the dancers processes for making movement. By conceiving of the practice through such concerns, and more precisely in terms of exploring a concept for live-digital dancing, the dancers were inspired to re-think and explore further characteristic changes in their dancing. This resulted in an expressive and inspiring environment in which to invent and experience movement affectively.

One of the most significant findings for this research has been the potential for empowering the dancer to think differently about her movement and as a result experience an alternative sense of self. Furthermore, the dancer's attunement to, and awareness of her emerging experiences, opened-up the possibility for shaping materials outside of a usual conception of digital dance

performance. Intrinsically, it was the dancer's developing sense of an atypical assimilation of bodies, images, and sounds, as she experienced them in the moment of performance, which transformed the outcomes for this study. Consequently, the two main questions of the thesis have been addressed and it has been demonstrated that a dancer's transformed perceptual and embodied experience can challenge the dominance of the digital.

Moreover, in my attempts to confront the problematic medium, what has transpired is a way to *think* digital dance performance. This has arisen through a methodological approach, which brings together a number of key philosophical and practical concerns. These concerns, described hitherto as a concept for live-digital dancing, offers additional knowledge to the field. Significantly, my invention of the term live-digital has helped me to advance the idea that a dancer is not bound or restricted to moving as part of a binary relationship with technology. Rather she can be empowered to let go of the necessity to activate movements in service of the technology by exploring and experiencing a highly affecting and intimate connection between bodies, images, and sounds. In so doing, the works not only address the apparent tensions that can exist in digital dance performance, but they offer an approach for how best to transform the processes for making movement through a concept of live-digital dancing.

**2. Moving beyond the bounds of live and/or digital**

In response to the main questions of the thesis, what arose through the practice was an iterative process which not only challenged the dominance of the digital, but which also placed greater significance on the dancer's perceptual and experiential knowledge of moving in mediated environments. Engaging with such a process has therefore given rise to a number of approaches and strategies for moving with simultaneous projections of self, which can be usefully applied in order to appreciate a more intimate connection between bodies and technologies. Under the auspices of a concept for live-digital dancing, the following key findings offer further practical and experiential knowledge to the field.

In terms of attempting to move beyond the binary connections that were established in chapter 1, and in response to the first question, what emerged was a process for inspiring new modes of perception. This was besides trying to decipher whether the work was indeed either live and/or digital. Furthermore, the creative strategies and processes that developed practically in the studio occurred because the dancer was engaging with the challenges on a conceptual level. As such, the trap of the dominance of the digital became less of a challenge than how to create a situation that could inspire the perceptual and embodied experiences of the dancer. By way of addressing this, the question of how to elicit a response, which might then stimulate alternative methods for both generating movement material and creating a suitable technological environment, became the priority. In terms of the overall process, it was important to begin with the question of the dominance of the digital. Yet, what became more pressing was how to establish a creative framework whereby the digital could not only become an intrinsic part of the choreographic intention, but that the digital could become implicit to the ways in which a dancer was inspired to think and act. In this way, the digital was not something to work with, but became part and parcel of a process for thinking movement. As Portanova concluded in her discussion of the abstract nature of movement and thought, "In this technological/conceptual

light, movement, it seems, becomes a matter of the mind at least as much as it remains an effect of the body" (2013:139). As Portanova describes, the complex nexus around which a body is conceived, meant that movement could no longer be defined merely as a process for moving flesh and bones. This is particularly significant given the initial discussions in chapters 1 and 2 where the dancer's body was discussed as being useful only in so far as she could activate a technological effect. Yet, as Portanova described, movement, as a "matter of the mind at least as much as it remains an effect of the body" (ibid.), helped to open-up towards a far more transformative process in perceptual terms. This is beyond the dancer being useful to affect a result within a technologized environment. Thus, the dance pieces I created did not manifest themselves as a separation of body and image rather they transpired through a "direct experience" (Manning 2013:3) with occurrence of bodies, images, and sounds.

Auslanders claims to liveness (2005, 2008, 2012) helped to provide a theoretical basis from which to consider simultaneous projection of self. However, liveness in the context of this study developed into a set of further questions that related to embodiment and experience, over and above the challenge of either live and/or digital. Thus, the problem of such binary definitions, as they were initially presented as being either live or digital, developed to encompass the idea that the experience could be constituted as a live-digital encounter. Such an encounter was not focused on ideas of either one or the other, but was more concerned with how live and mediated materials could became uncoupled, in practice. This was because the dancer's developing perception of how all of the materials present affected her behaviour, irrespective of whether they were indeed live and/or digital. Such a binary definition was therefore no longer of paramount importance. What resulted from this was an affective and intimate experience of synchronizing bodies and technologies.

In consequence, the dancer's awareness of her emerging relationship to simultaneous projections of self challenged the view that she should be in service of the technology. Moreover, a concept for live-digital places the dancer's experience as key to how the creative content must be both conceived and managed choreographically and technologically. Without her knowledge of how it felt to engage in such a process, I am convinced that it would not have been possible to consider the amalgamation of bodies, images, and sounds in such a transformed way. My hypothesis is that practicing a concept for live-digital dancing significantly increases the possibilities for a dancer to perceive her relation to media beyond a dualistic relationship. Thus, it was by fore fronting a process, which concentrates on the perceptual and embodied experiences of the dancer, which opened-up a means for composing materials (be that live, live/digital bodies, images and sounds) outside of the hierarchal scenarios already discussed.

Moreover, rather than simply modifying what she did to create an effect or to establish a visual relationship with the image, the dancers began to let go of the idea that they must activate movement in connection with the image or sound at all. In point of fact, because they became evermore intrigued and changed by their experience, they were far more captivated by the potential for becoming metamorphosed as part *of* the system, which is what led towards the idea of a live-digital encounter. Accordingly, as each encounter developed, or as each recapitulation of the process progressed, the role of the dancer shifted away from a binary experience of dancing with the image and sound towards an experience that placed her amidst an ever shifting and evolving emergence of colours, trajectories, speeds, gestures, qualities and so on, which were evoked by a conglomerate of live, visual and aural materials. Likewise, by engaging in the creative process in this way, alternative artistic opportunities began to arise, which also presented her with the potential for redefining the meaning of her movements, as Broadhurst described in chapter 1.

As a result, such experiences became informative of how and why she moved and as a result began to change the ways in which the system behaved. By way of understanding this fresh experience the term live-digital was initially used by the dancers, who came to describe their embodied experiences of affecting the system as such. The choice to hyphenate live and digital helped them to visualise a process that did not predicate either the technology or the movement, rather they were able to think about their engagement in the process by considering the materiality of live and digital materials as they became manifest through their experiences of moving with, and as, projected materials. Furthermore, they began to think about the dancing beyond just the design of their physical bodies to encompass qualities and textures that felt digital in nature. Subsequently, the term live-digital was adopted and used to signify not only her experience, but also what she did and why she did it, which proceeded to a methodological approach for moving through such encounters.

To conclude, live-digital signifies the potential for bodies (plural), to be explored beyond a hierarchical scenario, which has resulted in the dancers thinking differently about the materiality of their movement and the dance itself. What is more, the dancers have developed a live-digital sensibility, which means they can relate to, and sense movement as part of, a continuously shifting landscape of bodies, images and sounds. Importantly, this sensibility is dependent on the dancer's awareness and experience of being dynamic. This is what enabled her to let go of her usual compulsion to move in syncopation with the projected image, and which ultimately created an affective and intimate experience of moving in media-rich environments.

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