

MIDDLESEX UNIVERSITY

Faculty of Arts and Creative Industries

**Accenting Agency:  
Duets within Interactive Video Installation**

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**ABSTRACT**

FACULTY OF ARTS AND CREATIVE INDUSTRIES

Doctor of Philosophy

*Accenting Agency: Duets within Interactive Video Installation*

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This PhD by Publication constitutes a research enquiry into creative agency within interactive video installations through reflection on six published works: *Remote Dancing* (2004-9), *Doing* (2008), *Orbital* (2010), *Gravity Shift* (2010), *ByPasser* (2010) and *Weighting* (2015). These installations have been documented and are presented on online.

Key to the discussion, is the notion of agency arising through the intersections within intermedial environments (Scott & Barton, 2019). By viewing interactive video installations from this perspective, I examine how activity within works can be viewed as co-agential taking the form of a duet between participant and filmic content. Through the choreographic concept of a 'relational net' (Rubidge & Schiller, 2014) I recognise and place importance on spatial provision for the whole-body movement across both physical and filmic space to encourage greater agency within installations.

To progress the analysis, I identify specific forms of encounter and engagement a participant experiences as they interact with installations, drawing on observations around dwelling (Giddens, 2019) and intimacy (Hill & Paris, 2014) as significant contributors to agential involvement. As practical ways to support the development of future work in the field, I articulate modulation and destabilisation as techniques to highlight and stimulate active participant involvement. These techniques blend in embodied film theory (Sobchack, 1982), highlighting how the intentionality of the camera emphasises each participant's awareness of their physical engagement and subsequent agential action within interactive video installation.

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# Introduction

In 2002 I had the pleasure of presenting a short dance film at the prestigious IMZ screen dance forum in Monaco. The film was funded through Arts Council England's *Capture* initiative aimed at supporting dance engaging with film and new technology.<sup>1</sup> Whilst there I spent my time in two kinds of presentation space both housed within the futuristic Grimaldi Cultural Centre: one, the familiar cinema auditorium with its orderly raked seating, blacked-out environment, and large single projection screen; and the other, an open conference-style area set far away in the basement. The latter was a flexible kind of space, one that could facilitate immersive installations, interactive projection and general experimentation into how the digital technology of the time might lead to new forms of dance experience. Between events I spent time socialising with friends and colleagues who were also presenting at the event, filmmakers including Shelly Love and Rachel Davies, and dance and technology practitioners/researchers Mark Coniglio and Sarah Rubidge.

As the five-day event progressed, I began to become aware of a disparity between these two specialisms, dance film and dance technology, not only in their physical locations within the building and their presentation conventions, but also in their associated artists and audiences. When speaking to colleagues, it seemed that there was, at the time, little awareness of each other's practice, perhaps with the exception of artists, Ruth Gibson and Bruno Martelli who seemed to cross successfully between presenting single-screen film and interactive video installation.<sup>2</sup>

The IMZ forum was a pivotal event for me, inspiring my shift from filmmaking practice to the creation of installation-based and interactive environments. On the one hand I was excited with what new technology could offer by embracing audience physicality, but on the other I felt that I did not want to abandon what film, with its ability to highlight the nuances of movement and attention to spatial composition, could bring to the creative process.<sup>3</sup> Months after the event, I found myself reflecting on the question of how can one draw from what film practice has to offer whilst at the same time physically engaging and acknowledging the participant's agential impact in the way that interactive installation is so good at doing.

In this PhD by Public Works, I aim to investigate creative agencies arising out of the participant's engagement within interactive video installation, drawing from multiple disciplines including film, dance, theatre and installation art. I consider action across both physical and filmic space as a 'relational net' (Rubidge & Schiller, 2014, p. 3), giving attention to not only spatial relationships but also to underlying filmic mechanisms, including video scrubbing and camera motion, that affect our perception and engagement with movement, space and time. To illustrate many of these ideas and principles this document makes use of embedded hyperlinks and animated illustrations, and for these reasons is best viewed electronically rather than on printed copy.

This submission brings together key works which specifically address and contribute to this aim, selected from a much larger body of artistic output documented at my website. The selected works are: *Remote Dancing* (2004-9), *Doing* (2008), *Orbital* (2010), *Gravity Shift* (2010), *ByPasser* (2010) and *Weighting* (2015) shown in figure 1.

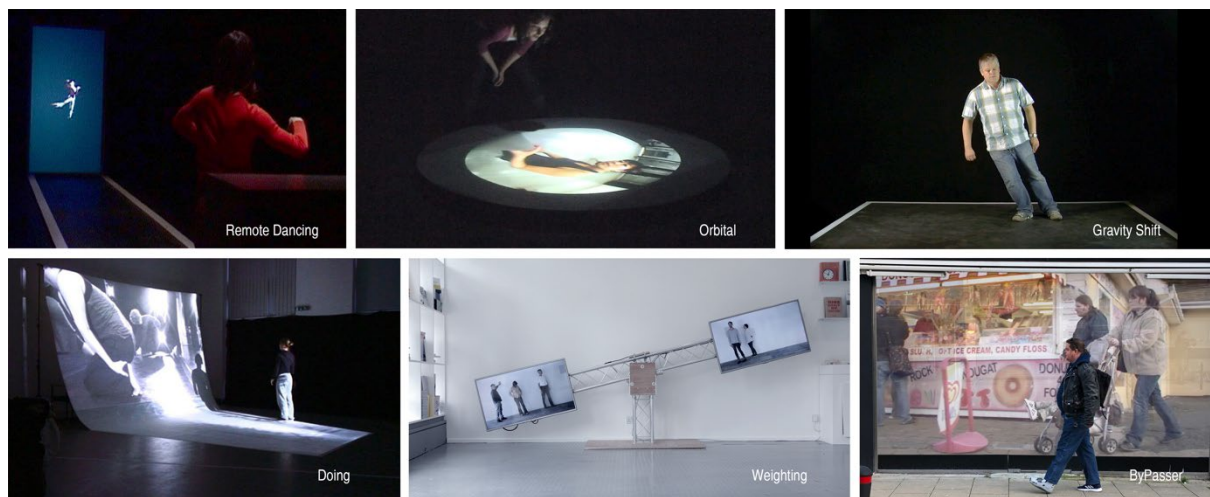


Figure 1. the collective body of works illustrating the variety of presentation spaces, ranging from theatres to galleries and outdoor sites.

I will use the term *collective body of works* when referring to these as a whole. It is also worth noting that I employ *participant* for the member of public engaging with the work and *filmic subject* for the moving focus of the film integral to each work. For *most of the* works, the filmic subject, who I will

refer to as ‘them’ or ‘they, is a performer (or performers), pre-filmed moving or dancing in front of the camera. As an investigative strategy, I present these works as a series of movement duets between participant and filmic subject, examining the nature of each duet in its respective work. I examine how agency arises through these installations, and note how it is accented and activated. To support this strategy, I also explore techniques through which the participant can notice their own physical action within the duets, so as to further integrate and highlight the agential nature of their role.

*Remote Dancing* provides the basis for all the collective body of works, partially due to it being the first in the series but more because the work introduces most of the key concepts in this investigation. Later works either expand upon *Remote Dancing*'s interactive environment as a whole, which can be seen in *Orbital* or *Doing*, or focus in on specific elements making these the subjects of their exploration in themselves, evident in *Gravity Shift*, *ByPasser* and *Weighting*. The works were created in between 2004-2015, a period when there was a significant amount of attention devoted to dance for screen and digital dance installation.<sup>4</sup>

## **1. Description of the Works**

Please also refer to Appendix 2 which outlines the technical details of each of the following installations.

### ***Remote Dancing (2004-2009)***

*Remote Dancing* took the form of three ten-metre long enclosed corridors each with an entrance at one end and a rear-projection screen at the other. The participant enters each of the darkened corridors, in whatever order they chose and, on doing so, discovers a life-size projection of a dancer appearing on a screen at the far end. This projected image of a dancer (the filmic subject) appears, through perspective, to be a further 10m behind its surface, an effect equivalent to the perception of one's virtual image in a mirror. The corridor is narrow, restricting the participant's travel to a linear forwards and backward motion. As the participant approaches the screen the dancer reciprocates by dancing in a straight line towards them. Continuing to the screen, the participant meets the now life-

size dancer eye-to-eye; however, if they move backwards away from the screen the dancer simultaneously retreats backwards reacting as one's reflection would in a mirror. The relationship continues in this way whilst the participant remains within the corridor as illustrated in figures 2 and 3.

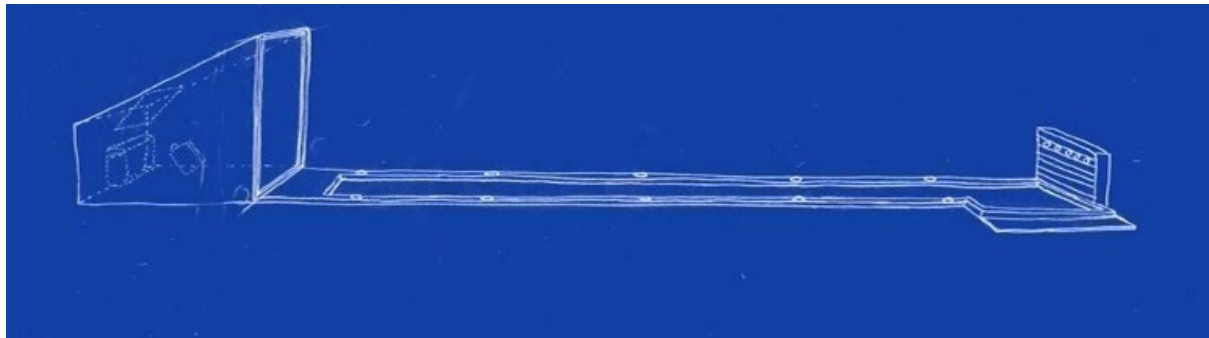


Figure 2. Physical structure of a *Remote Dancing* corridor (walls are removed for illustration)



Figure 3. Two *Remote Dancing* corridors being installed at Aberystwyth Arts Centre, Wales, 2007

### ***Doing* (2008)**

In this work, from the outset, the participant is placed *within* a dance performance that has been filmed onstage using a moving point of view, rather than from a traditional front-on audience setting that may 'imprison the spectator through [the fixed] perspective' of video (Manovich, 2001, p. 113). The film, which depicts a stage, surroundings and several dancers, is projected onto a large, curved

screen. *Doing* incorporates a curved plane covering both vertical surface and the horizontal floor (shown in figure 4) and rather than being separated from the video, the participant now stands on and is, to a greater degree, immersed by the video environment and its contents. The film's point of view is in constant flux as the camera weaves in and around a choreography of the six dancers in a similar manner to *Orbital*.

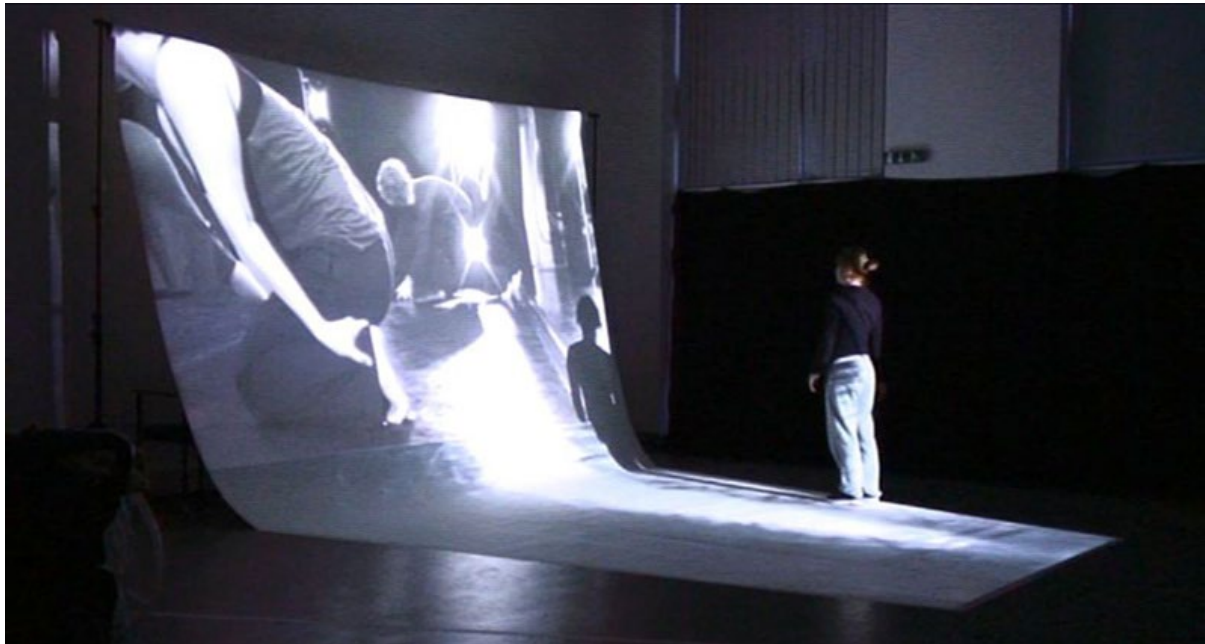


Figure 4. *Doing*, presented at South Hill Park Arts Centre, 2010.

### ***Orbital* (2010)**

*Orbital* was created six years after *Remote Dancing* which had at that time just finished international touring. As with *Remote Dancing*, the installation employed similar interactive video technology (detailed in chapter 2); however, in contrast to the linear and symmetrical movement relationships, the actions within *Orbital* were less centred. Here the participant was presented with a space through which to circumnavigate a large circular and horizontal projection screen but not stand in the central position directly in front of it, as one would in *Remote Dancing*.



Figure 5. *Orbital*, presented at Somatics and Technology Conference, Chichester University 2012.

### ***Gravity Shift* (2010)**

*Gravity Shift* places its focus on how the participant perceives agency and draws attention to what they feel in response. The installation took the form of a pre-recorded video depicting a life-size dancer projected onto the wall of a gallery. The video was played continuously on a loop of four to five minutes in duration but, unlike earlier installations, did not react to the presence of the participant. The filmic subject (a dancer) was depicted moving in an unstable manner, as if being affected by a moving pull of an invisible force (see figure 6).



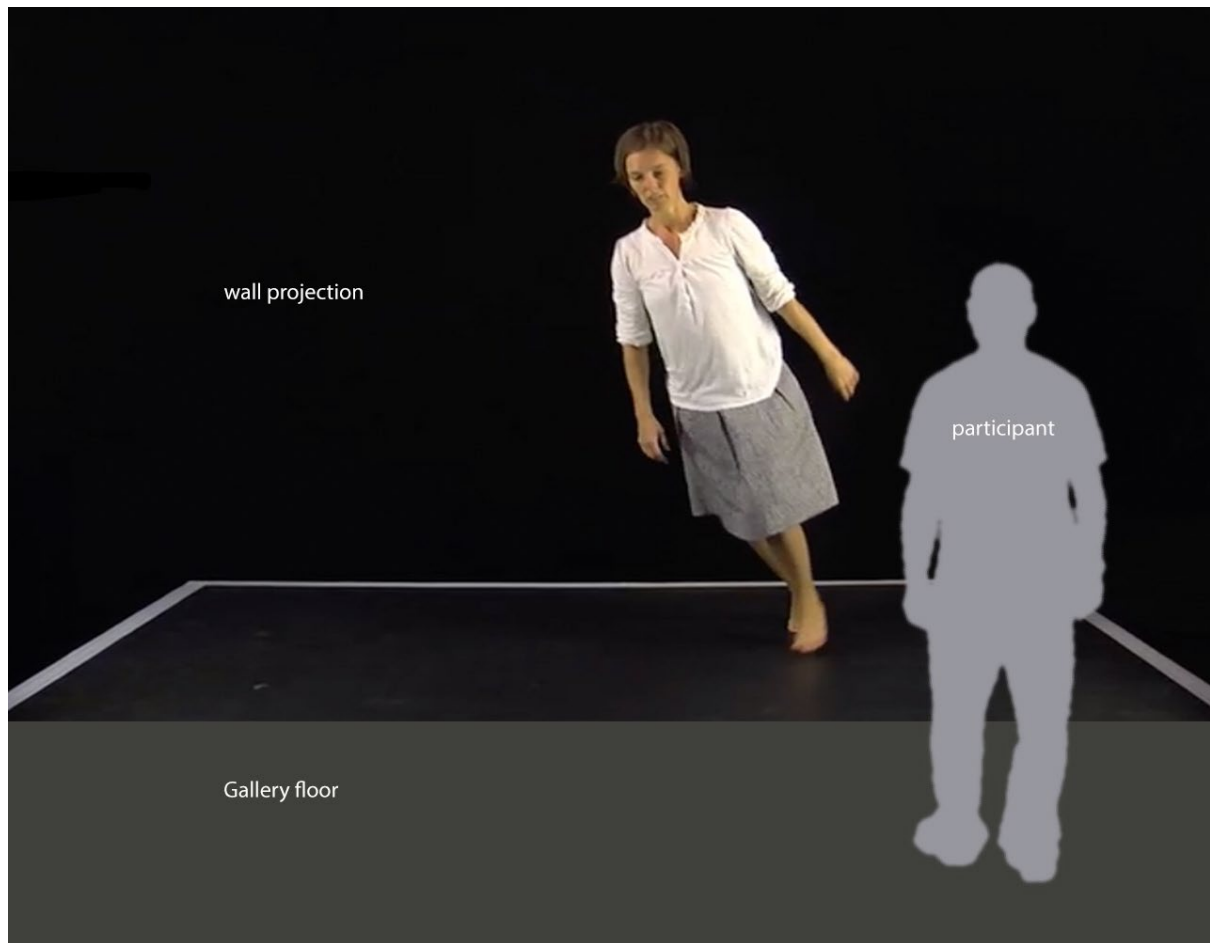


Figure 6. Illustration of *Gravity Shift* 2010. projection (black area) with participant in the gallery space (dark grey floor area).

### ***ByPasser* (2010)**

*ByPasser* opts for neither theatrical or gallery space, choosing to place its filmic content into the pre-existing frame of a shop front window on a high street.<sup>5</sup> As with *Remote Dancing* and *Gravity Shift*, the film playback is affected by physical movement in front of the screen, this time responding to transverse motion as members of the public pass in front of the window (see figure 7.). The projected film, being recorded as a tracking shot, creates a moving background that echoes pedestrian action, following their position as they walk past. The effect can be shown through [this demonstration](#) which uses the original footage; unfortunately, no direct video documentation exists of the work. Note that in the demonstration, the cursor position represents members of the public passing back and forth in front of the window.





Figure 7. *ByPasser* at Stone Squid Gallery, Hastings (2010).

### ***Weighting* (2015)**

*Weighting* acknowledges the filmic frame as an entity in its own right. Though there are similarities the work differs from earlier work: it utilizes video monitors rather than projection, is presented in daylight, and the video content is not interactive. In this work, emphasis is placed on the video monitor as a frame with size and weight which becomes part of the three-dimensional physical space inhabited by the participant.

*Weighting* is based on the movements of five filmic performers who appear on two video monitors connected together by a three-metre horizontal beam of trussing forming a seesaw with the performers at each end. The monitors show these performers standing and waiting in a Beckett-like fashion (why they are waiting is never disclosed) distributed across both screens. Every so often one performer leaves the frame of the first screen to enter the second and visa versa. The piece is carefully balanced on a central axle that allows the beam (and hence the monitors) to rise and fall reproducing the motion of a large set of weighing scales, responding as if their bodies were physically present in the space.

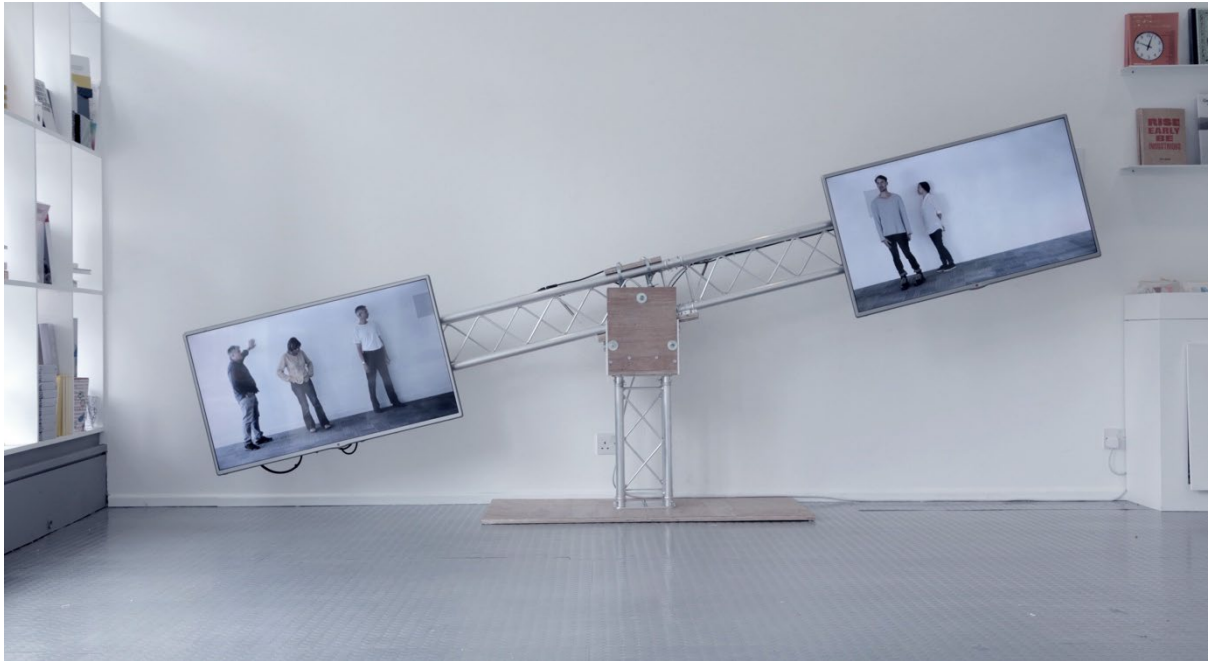


Figure 8. *Weighting* (2015) at Milton Keynes Gallery.

## 2. Locating the Practice

This body of work are located by the fields of film, dance and choreography and Installation arts. The interrelationships between these practices are illustrated in the following Venn diagram, figure 9. The central overlap is shared by works of other practitioners including choreographer/artist academics, Gretchen Schiller and Susan Kozel, Ruth Gibson and Bruno Martelli.

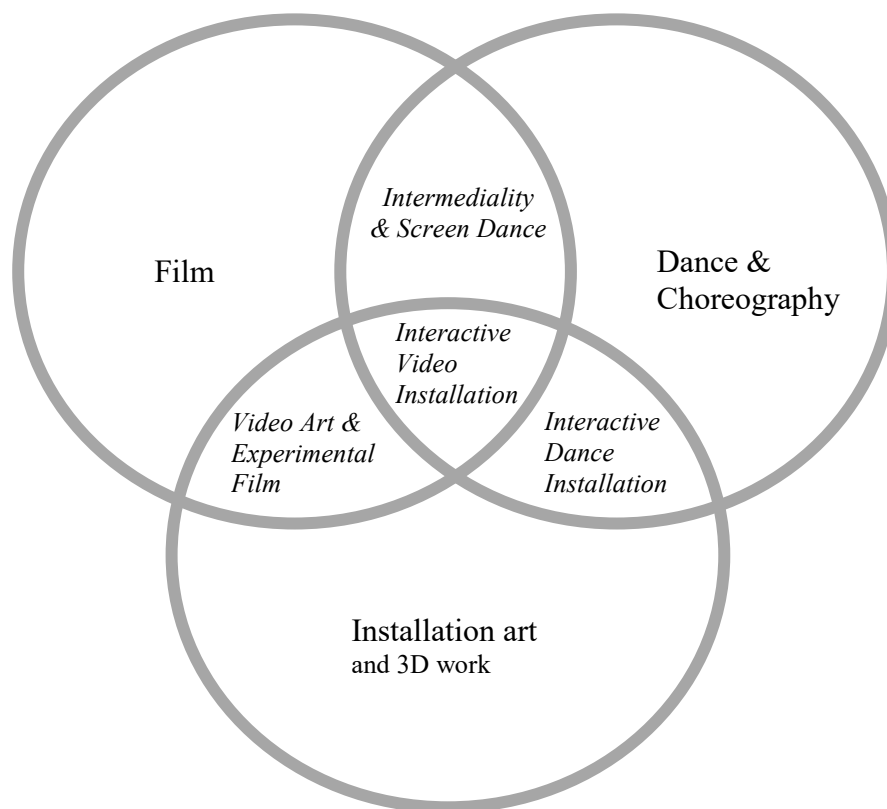


Figure 9. Locating the Practice.

The overlapping space in which my collective body of work resides is significant as the motivation behind this writing and the making of the works arose out of a response to a separation between participant and filmic content in traditional engagements with screen-based dance, where through convention, focus is directed primarily towards the actions contained within a video screen and away from the participant's own physicality within the immediate surroundings. Critical theorist, Claire Bishop cites artist Dan Graham, who argues how cinema audiences can become 'disembodied viewers', who 'lose consciousness of their body' (Graham quoted in Bishop, 2005, p. 75).

Considering dance practice is so much about the moving body, it therefore seems strange not to embrace the physical presence of the witness of the work. The underlying motivation for my work is and always has been about the body, its presence, and its status, particularly within contemporary western society that, in my experience, tends to ignore or escape corporeality.

In my discussion I place primary emphasis on the physicality of the body, the immediacy of the participant and their dynamic interactions with each installation. I have chosen to reflect on these physical characteristics within the works rather than dwell on other aspects of engagement that might encroach on, for example, psychological or political perspectives. Within the disciplines of screen dance and video art there already exists an extensive amount of critical analysis coming from both psychological and political enquiry. For example, the gaze of the filmic subject and its psychoanalytical interpretations within cinematic spectatorship has been given considerable attention by film theorists such as Christian Metz (Metz, 1982). Within screen dance, the nature of the gaze and dancing body is also discussed by theorist, Douglas Rosenberg (2012, pp.162-163). On a political level, the relationship between participant and artwork has been explored in depth through curator and critic, Nicholas Bourriard's concept of Relational Aesthetics; the subject of Bishop's final chapter of *Installation Art*, titled 'Activated Spectatorship' (2005).

The emphasis on physical presence was a main feature of my earlier stage-based work in the 1990s. Prior to working on film and interactive video installations most of my artistic output took the form of live performances often incorporating video, slides and other visual media. My choreographic interest was primarily concerned with slowly shifting spatial relationships between bodies in the landscape. I was interested not so much in the complex choreographic gestures, but the immediacy of the body on stage and the meanings evoked from being close to or far away from another person. These performances integrated film, slides and projection in order to extend the depth of a dance stage beyond the physical confines of the theatre: projecting an image of the landscape could, through perspective, easily extend the audience's perception of the performance space out to the horizon and in doing so present a greater range of placings for the body reside and subsequently a greater range of spatial relationships. Almost all of my previous work has drawn strongly on this three-dimensional setting offered through film and its ability to offer a parallel choreographic space which can sit alongside the physical stage or gallery. This is most notable in the performances *About the Weather* (Sandiland, 1996) and *Hypermarket* (Sandiland, 2004).



Figure 10. Scene from *About the Weather* (1996), presented at The Place Theatre, Euston, illustrating the use of slide projection to create depth of space.

Much of my past work was influenced by other artists at the time who were presenting minimalist movement-based work; these include choreographer Rosemary Butcher and the Japanese Butoh company Sankai Juku. It was their ability to shift audience focus on specific aspects of movement in a more meditative manner that attracted me to these forms, in contrast to the multi-layered compositions of other contemporary choreographers which, although highly crafted, did not allow the audience time to dwell and reflect on such details. In the case of my own work these forms have helped me devote attention to the subtly shifting spatial interrelationships of dancers, an aspect often masked by additional layering of more complex gestural movements taking place within, what Rudolph Laban terms, a dancer's kinesphere (1966, p. 10). I will later reflect on the idea of dwelling in interactive installation in Chapters 1 and 2 through reference to, choreographer, Sara Gidden's writing on dwelling.

In my discussions I reflect on agency within intermedial environments through the writing of theatre practitioner/researchers Joanne Scott and Bruce Barton.<sup>6</sup> In these environments I examine the details of participant engagement drawing from performance practitioners and self-described

‘autoethnographers’, Leslie Hill and Helen Paris and their thinking on intimacy and audience proximity, as well as their reconsideration of the science of proxemics (Hill & Paris, 2014, p. 4). In addition, I also draw on choreographer Sara Giddens’ writing to examine how a state of stillness or dwelling within an installation might add to a participant’s agential involvement. Continuing these spatial considerations, I analyse the installations in a choreographic context with reference to Sarah Rubidge and Gretchen Schiller’s writing, applying their insights to the relationality of movement between performers, participants and background. When considering the moving background, as presented in *Orbital, Doing* and *Bypasser*, I draw from film theorist Vivian Sobchack to explore agency arising through the ‘intentionality of [the] camera’ that leads to the creation of this movement (1982, p. 317). In my the discussion I will also make reference to key ideas from installation art on the ‘destabilised’ role of the participant or viewer, a development of ‘decentring’ as used by writer’, Claire Bishop (2005, p. 11).

Central to this investigation is the notion of creative agency. I use this term to describe the way a participant can affect the flow, rhythm, development and spatial positioning of the content in contrast to an overtly political agency, that might be associated with, what Bishop defines as ‘activated spectatorship’ (2005, p. 102). Scott’s writing helps to shift the attribution of agency by moving our attention away from an individual possessing of ‘agency or power’ and towards the doing of agency, or ‘enact[ing] agential action’ (Scott & Barton, 2019, p. 69). As Scott makes clear, agency is not a thing in isolation, it arises through the ‘intersections with other elements’ within the work and involves process and exchange (Scott & Barton, 2019, pp. 68-69). In this writing I present all action within the collective body of works as co-agential, embracing both the agency arising from the participant’s engagement and the perceived agency of the filmic subject. Taking the notion of co-agency further, I examine each installation as a duet: a unified process in itself, where focus is simultaneously placed on all movement as a choreographic whole or ‘relational net’ (Rubidge & Schiller, 2014, p. 3); a point of view that resonates closely with Scott’s description of intermedial theatre events as ‘a set of dynamic and interconnected processes’ (Scott & Barton, 2019, pp. 64-65). By doing so I aim to shift emphasis away from discrete quantifiable components (screen contents,

participant) to consider instead, evolving duets where the participant's actions are seen as integral and essential to the interactive processes.

To aid my discussion I reference other work within my field of practice including academic/practitioners Gretchen Schiller and Susan Kozel's interactive installation, *Trajets* (1999 [v1] 2007 [v2]), a work that acknowledges and encourages participant agency through its architectural form. I also draw attention to artist Carsten Höller's installation *Swinging Corridors* (2004 to date), and filmmaker Tony Hill's moving camera films,  *Holding the Viewer* (1993) and *Downside Up* (1984). Both of which impact on the participants' potential for agential action through the detabilising of their background environments (either physical or filmic).

### **3. Means and Development of Analysis**

The research analysis supporting my investigation was developed through extensive participant feedback over the significant duration of each installation's exhibition: more than thirty weeks of continuous presentation in the case of *Remote Dancing*. Feedback was collected in three ways: comments books, direct observation, and discussion. Invigilators for each exhibition had a comments book and were instructed to encourage visitors to add their remarks and reflections after participating with the work. For part of the time, when present at a venue, the artists (myself and the respective choreographers) would also observe interaction and engage participants in discussion to ascertain further experiential data. Prior to public exhibition, the initial phase of research for the earliest installation, *Remote Dancing*, was conducted with invited guests in a laboratory format at Artsadmin in East London, allowing unpressured time for in-depth discussion-based feedback. Later, during public exhibitions, feedback was more informal in nature becoming part of the routine when presenting work at new venues.

In general, a focus was placed on feedback that addressed the physical effect each work had on participants, how they engaged and their feelings of agential involvement; quantifiable aspects such as: how long the engagements/duets lasted; how absorbed the participants became; how often they

tended to mimic or react to what they witnessed; and how liberated at a physical level a participant felt were noted. Participant response in tandem with invited feedback provided a greater sense of certainty when writing about the experience of interacting with the installations. The resulting analytical process in this thesis subsequently evolved out of the exchange between feedback from participant involvement and the identification of processes operating within the installations (for example, ‘destabilisation’ as detailed in Chapter 1).

#### 4. Chapter Overviews

The writing consists of three chapters:

**Chapter 1, *Space to Move***, asks how the spatial relationships within each installation can support and develop the creative agencies which take place within. I divide participant experience into two consecutive phases, *encounter* and *engagement*. Encounter examines agential action through the initial meeting between participant and filmic subject by drawing on the Hill and Paris’ ideas of proximity. Engagement centres on agency arising through the developed ongoing movement exchange between participant and filmic content within the works. I also highlight how the sense of destabilisation some works introduce provides a means to ‘*confirm* the viewer’s sense of self-presence’ and how this might be expanded to acknowledge not just their body, but also the participants actions as an integral and agential part of all activity within the installations (Bishop, 2005, p. 26, original emphasis). I conclude by reflecting on how even the apparent non-action of the represents a form of agency that is ‘full of intention and ownership’ (Giddens, 2019, p. 214).

**Chapter 2, *Modulation and Agency***, introduces the technical connectivity between participant and filmic content within the collective body of works. The chapter presents the idea of modulation through video scrubbing as a technique to support immediate and continuous relationship. I identify four further kinds of engagement and through these examine the agency that arises: Temporal Magnification, Investigation, Intimacy and Stillness, and Reaction. The chapter also expands on the notion of agency drawing on the work of artists, Raphael Lozano Hemmer and Gary Hill, dancer and



contact improvisation pioneer Steve Paxton, and writer/practitioners, Joanne Scott and William W. Lewis. Through my discussions I identify agencies that include: the *perceived agency* of the filmic subject, the *reactive agency* of the participant, the recognition of *potential for agency*, arising out of dwelling (Giddens, 2019, p. 222), and subconscious and ‘unintentional agency’ (Rubidge & Schiller, 2014, p. 22).

**Chapter 3** introduces filmic content shot with a moving camera, examining how this affects the participant’s sense of physicality and awareness of agential involvement. I consider destabilisation, as discussed in chapter 1 in combination with the ‘intentionality of camera movement’ (Sobchack, 1982, p. 317). In this discussion I cite works by filmmaker Tony Hill, and installation artist Carsten Höller. Through reference to Giddens, I emphasise the role of the video monitor as a physical object in itself that can convey a sense of intentionality and present a potential for agential action.

# Chapter 1

## *Space to Move*

## 1. Introduction

This chapter explores the spatial relationships within my collective body of work and how each installation supports and develops creative agencies. I draw on Scott and Barton's discussion of agency in intermedial theatre to place an emphasis on, what I term, *engagement*, as a fundamental process through which agency takes place (Scott & Barton, 2019, pp. 64-65). Beginning with *Remote Dancing*, I examine the significance of encounter and engagement in this work and expand on this, exposing the different relational arrangements experienced in *Orbital* and the complex interrelated patterns of movement between multiple filmic subjects and participant within *Doing*.<sup>7</sup> In these works, I consider the importance of both filmic and physical spatiality for agential contribution, where room to move within is given to filmic subject, as well as participant. I conclude, through reference to Giddens, by examining how stillness within the installations might also be considered an active part of the encounter and engagement, supporting both physical and perceptual participation.

## 2. Space to Move

In 1993 I was fortunate enough to attend a dance workshop in Cumbria, UK, led by contact improvisation founder, Nancy Stark Smith. During the workshop I came across a new term of engagement within the duet form of contact improvisation that Stark Smith named 'grazing'. At the time, she described grazing as a phase between dancing alone in your kinesphere and becoming more involved in a dance duet; this phase involved actively watching other dancers whilst moving solo around the room, as well as engaging with short fragments of contact-based dance.<sup>8</sup> During my time in the workshop, I found it interesting to explore how one could move around the studio and still establish a sensitive or intimate movement dance-connection with other dancers from afar, particularly without having to always be in direct physical contact, as is the nature of the form. Grazing, for me, was much to do with visually witnessing other bodies at a distance and empathising with their tempo, energy and momentum; the fact that this took place on a dance floor, a space where I was already physically engaged with freedom to move around proved a crucial factor in this long-distance yet still-intimate part of the dance.

The provision of space for grazing was, and is, a fundamental aspect of my own dance and movement improvisations and is also a significant feature that lies at the heart of each of the collective body of works. In a similar manner to my experience of Stark-Smith's workshops, by giving space to move, each of my installations seek to offer and actively encourage agential involvement through spatial play over distance. My aim in doing this is to place an emphasis on how both participant and filmic subject relate to and interact with each other in terms of spatial placing and relative motion. On a conceptual level I suggest that this movement engagement can be thought of as choreographic. For as Rubidge and Schiller note in their book 'Choreographic Dwellings', how 'choreographic activities and events do not only have to be seen as belonging to the domain of dance' (2014, p. 2).

Correspondingly, although the participants in my installations are not necessarily trained dancers, I suggest that, as physical bodies, they too can engage in a choreographic manner, playing with and composing their actions in time and space in response to the reactions of each installation. As their discussion progresses, Rubidge and Schiller make reference to dance academic Susan Foster's description of choreography, the 'orchestration of bodies in motion,' (Foster, 2011, p. 15) contrasting this with the more traditional stage-based associations of 'organization of gestural patternings,' or the detailed motions of hands, limbs and body parts of a dancer (2014, pp. 2-3). By doing so, Rubidge and Schiller highlight the importance of the space that we, dancers, participants and pedestrians alike, move through that place us in a multiplicity of relationships with other people and architectures.

Emphasis here is shifted away from skilled dexterity of the body and onto commonplace movements validating and including *all* action through a choreographic re-framing. Further, Rubidge and Schiller use the term, 'relational net', broad enough in definition to encompass not just, 'the behaviours of the public', but also the place or environment where such behaviours take place. They go on to add how surrounding architectures, such as the physical form an installation, can support and affect the movement contained, and specifically how these choreographic dwellings, have the potential to 'imbue the public with kinaesthetic agency' (Rubidge & Schiller, 2014, p. 3). In other words, it is through provision of space to support the multiple interactions between ourselves, others and the surrounding environment, that agency, in this case kinaesthetic, can be facilitated.

This idea, that agency is an interdependent quality, is echoed in Scott and Barton's reflections on intermedial theatre. In their analysis Scott and Barton draw on theorist, Karen Barad to consider the dynamics of agency within their practice, illustrating how intermedial environments present 'a set of dynamic and interconnected processes' (Scott & Barton, 2019, pp. 64-65), a view which resonates closely with Rubidge and Schiller's relational net. Subsequently, they highlight how agency is created through these processes pointing out how agency is not a presupposition that 'someone or something has' rather something that arises through the 'intersections with other elements in play' (Barad in Scott & Barton, 2019, p. 68-69).

### **3. Establishing Duets**

I have chosen to use the term *duet* to describe the relational net present within my installations. This choice partly arises from the relationships established in *Remote Dancing*, which, when viewed from the outside, clearly echoes a traditional dance duet; two recognisable human figures moving in relationship to each other. When stepping into either a corridor of *Remote Dancing* or onto the projection screen of *Doing*: the participant is immediately placed in relation to the filmic subject, establishing a form of duet from the outset; as dance theorist Jenn Joy writes, 'to engage choreographically is to position oneself in relation to another' (Joy, 2014, p. 1).

On an objective level, one might question the use of duet in a situation where there is only one actual 'live' body in the work, the other being a pre-recorded film clip. However, my main reason for using the term is not to try to equate the two moving forms in each installation by presenting these as direct analogies of two live partners in a dance duet. Rather it is chosen to act as a cohesive way to acknowledge the *process* of a duet as an interrelational progression. From this perspective, emphasis is moved away from the discrete elements of each work and onto the flow of cause and effect that takes place within. Further, the exchange of movement between participant and filmic subject is framed as an ongoing continuum of subtle changes rather than a stilted sequence of action and reaction between two moving bodies.

By referring to the participation in each installation as a duet, I hope to draw attention to their interrelational and choreographic aspects where qualities of movement, timing and spatial composition come to the fore, shifting our attention to the flow of dynamics over any constituent part. This key concept of the duet as an interrelational progression has emerged from the works through the way each installation enriches and offers more than a conclusive or short-term interactive exchange. The term ‘interaction’ is perhaps no longer indicative of such a form that reflects and encapsulates the ongoing processes I describe within my interactive video installations and could be substituted with the more suitable and embracing expression, ‘duet’.

From this holistic perspective, the duets with each installation can be seen to resonate closely with Rubidge and Schiller’s relational net, embracing all action by both participant and filmic subject in a unified manner. Presenting this movement as a totality brings it into a single focus, that constantly reminds the participant of their own agential presence within the installation. This focus acts as both a mirror and window, allowing the participant to view external movement whilst simultaneously, and without distraction, noticing their own action.

The use of duet also establishes a convention which draws attention to its own definition, challenging notions of what constitutes a ‘dancing partner’. This aspect is explored in Chapter 3 through *Doing*, *Orbital* and *ByPasser*, which introduce moving camera mechanisms to create the animated backgrounds. In these works, there is a clear shift in form of the filmic subject from figurative individual to a more abstract situation where the participant is effectively duetting with a background environment.

Viewing the actions within the installations as duets has the advantage in helping to bridge physical and filmic spaces. Upon entering any of the six works the participant places themselves in relation to the filmic subject. They are relatively free to move in front of, on, or around the filmic subject and in doing so, become actively integral to the duet.<sup>9</sup> However, these relationships, unlike more conventional choreography, do not take place within a unified area or stage. The participant inhabits

the immediate physicality, yet the filmic subject resides within a separate video space, splitting the choreography over two zones. This disjunction poses an unfortunate divide where, the actions in one space can easily dominate over the other. As will be discussed in Chapter 3, the filmic subject has the potential to draw greater attention onto itself compared to the participant's physical presence, mainly due to the focusing power of the cinematic frame. As film theorist, Lev Manovich states, film has the power 'to *screen out*...whatever is outside the frame' (2001, p. 96). To combat this disparity, I suggest that by presenting the engagement as a duet, the installations seek to readdress any imbalance by placing an emphasis on the relational net over its constituent parts. This shifting of focus away from individual elements can seek to counter the physically detached experience of traditional cinematic viewing, as outlined in the introduction, homogenising the two spaces and recognising the participant as an active and essential part of each installation's relational net.

#### **4. Encounters and Engagements**

The participant's experience within the installations can be divided this into two consecutive phases, encounter, and engagement. Encounter is short-term, representing the first meeting between participant and filmic subject, and includes the participant's initial experience as they approach the screen. This is followed by *engagement* which represents the more long-term and ongoing relationship between participant and filmic subject. Compared to the other works *Remote Dancing* places a greater significance on the encounter due to the way in which the corridor structure highlights and extends the participant's approach over its ten-metre length (see figure 11).

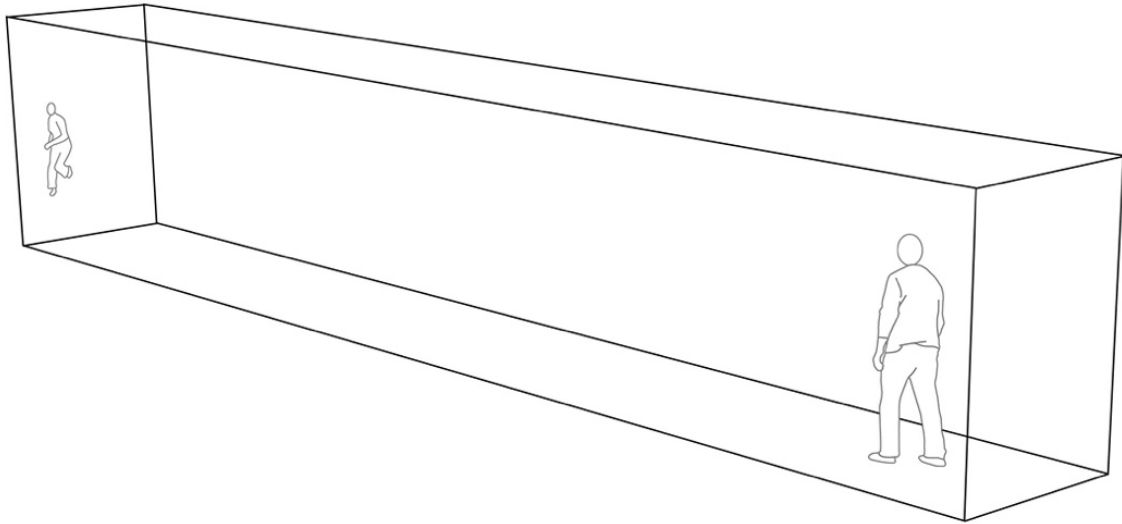


Figure 11, illustration of *Remote Dancing* corridor showing how its architecture supports the ten-metre approach for the participant.

In addition, the corridor's comparatively narrow width, at 1.8 metres, gives little room for the participant to sidestep away from the filmic subject. I will therefore dwell mainly on *Remote Dancing* when discussing encounter, but move on to include *Orbital* and *Doing* when reflecting on engagement.

### ***Encounters***

When first entering *Remote Dancing*, we find ourselves alone in a darkened space, visually and acoustically cut off from the outside gallery/theatre. A slightly indistinct figure, the filmic subject, can be seen sitting or standing at the far end of the corridor. There are no instructions to approach the figure; however, the corridor's architecture suggests that this is what we should do, and moving closer would reveal more of the figure's detail. From here on the encounter could be perceived as co-agenital: as soon as we initiate a move towards the figure, the figure appears to reciprocate the action by moving towards us. This is perhaps a surprising action as it asserts two things: first, the figure is perceived as acknowledging our presence, and second, they seem to move towards us, rather than stand on the spot or move away.



As we travel further into the corridor, we start to see the figure's welcoming facial expression more clearly, and we are also now aware that they are moving in an abstract and dance-like manner. Closer still and we begin to see definition in the figure's eyes: it is evident that they are looking directly at us. Arriving in front of the screen we find ourselves facing the now life-size figure. Strangely, at this point, the figure is perceived as less an ephemeral projection and more a person, possessing a physical presence standing directly in front of us in our shared space - this can be seen in this selected video clip of *Remote Dancing*.

Leslie Hill and Helen Paris offer a way to explore this encounter further through their writing on proximity, intimacy in live performance, which looks 'at the distance in physical space between performers and audience' (2014, p. 1). In their discussions Hill and Paris reconsider anthropologist, Edward T.Hall's 'landmark work introducing the "science of proxemics"' that examines the physical distance between human beings dividing it into, 'public, social, personal and intimate space' each being assigned a specific zone concentrically radiating out from a human figure (Hill & Paris, 2014, p. 6).<sup>10</sup> They note how these zones are defined by 'both somatic sensory information and by psychologically and physiologically internalised, but often unconscious, cultural norms' (2014, p. 6). In part, I have found Hall's zones helpful in identifying specific human traits and behaviours that arise when moving along the corridor of *Remote Dancing*; however, I have also noted that there are some differences when considering distances between physical and filmic bodies within an intermedial space. Although the specific traits and behaviours remain similar to Hall's, the distances at which these take place differs. I suggest that this could be due to the nature of mediation, specifically how we might relate to projected representations of the body, and also to how the digital sensing technology used within the work affects subtleties of movement at a distance. This latter point is examined further in Chapter 2 when I discuss subconscious movement and intimacy.

To help visualise the participant behaviour in *Remote Dancing* I have mapped Hall's proxemic zones onto a cross-sectional image of the corridor (shown in figures 12a to 12e). The first thing that is apparent is that Hall's far public space (greater than 25 feet) takes up most of the corridor. In their

description, Hill and Paris point out how the subtleties of ‘naturalistic expressions, voice, and movement’ are markedly diminished at this distance (2014, p. 8). Given this, one might expect the participant in *Remote Dancing* to ignore this part of the corridor. Instead, video documentation shows that, much like ‘grazing’, the proxemics activated different qualities of movement and interactions in the audience-participants. The more abstract whole-body interaction tended to take place in this far public zone, whereas the closer spaces inspired more nuanced and intimate meeting.

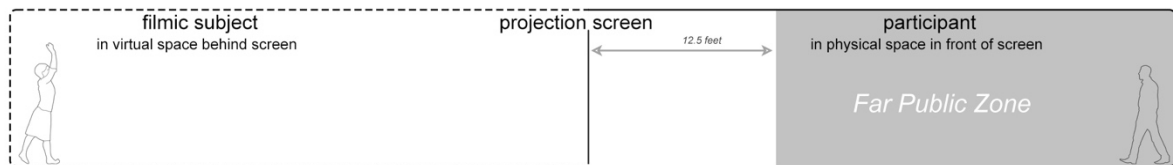


Figure 12a, illustrating Hall’s *Far Public Zone* (in grey) on a side view of the *Remote Dancing* corridor.

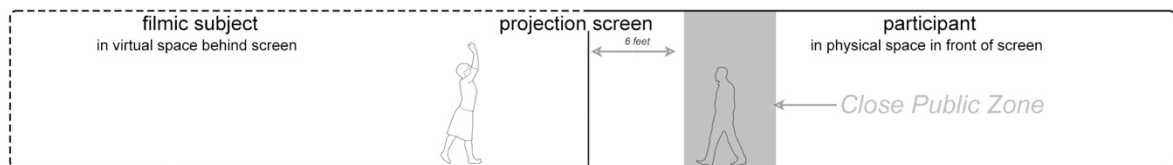


Figure 12b, illustrating Hall’s *Close Public Zone* (in grey) on a side view of the *Remote Dancing* corridor.

Carrying on into the corridor the participant passes through close public to the social zone (figure 12c.). Hill and Paris draw attention to how, when in this zone ‘an alert subject can take evasive or defensive action if threatened’ (Hall, 1966, p. 123), they go on to contextualise this noting how ‘performers and audiences have long been wary of each other if not outright afraid’, pointing out that ‘with increased proximity comes the risk of an elevation in fear’ (Hill & Paris, 2014, p. 11). Their reflection suggests that somewhere around this point in the corridor, the filmic subject may be perceived as contributing greater agency to the duet. There is considerable distance between the participant and the exit/entrance and although the filmic subject is clearly a projection, being life-size and unframed, it still has the capacity to suggest a slightly unnerving physical presence.<sup>11</sup>

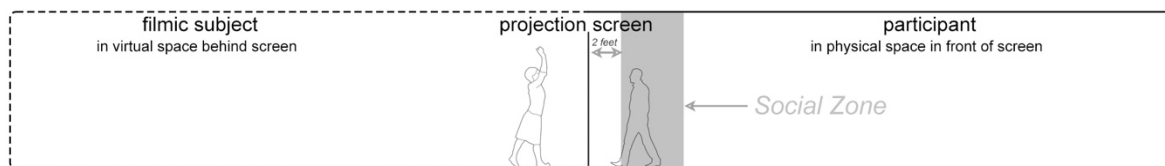


Figure 12c, illustrating Hall's *Social Zone* (in grey) on a side view of the *Remote Dancing* corridor.

When approaching the *personal* zone (see figure 12d) other sensorial information begin to take effect including kinaesthesia where ‘we can reach out and touch someone or be touched’ (Hill & Paris, 2014, p. 10). Though the participant can neither touch a *real* body through the video projection of *Remote Dancing*, Hill and Paris go on to add that ‘it is the *possibility* rather than the actuality of closeness that defines the close phase of personal space; the frisson of the almost but not quite intimate’ (2014, p. 11 emphasis added). Considering the possibility for touch to occur rather than the act itself can help clarify why participants react so actively to the filmic subject in *Remote Dancing*. Rather than responding to a two-dimensional projected image, participants tend to treat the filmic subject more like a dancing partner who is present within a shared physical space.

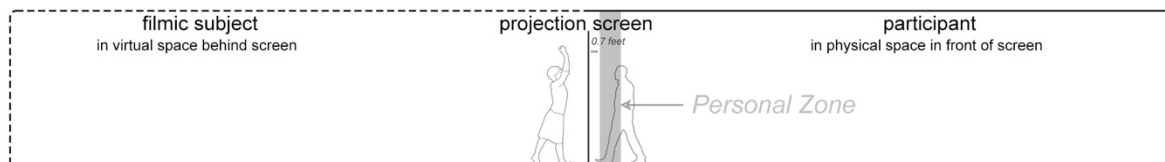


Figure 12d, illustrating Hall's *Personal Zone* (in grey) on a side view of the *Remote Dancing* corridor.

Hill and Paris also note that whilst it is rare for audience members to share *intimate* space with performers in theatre, it is a common occurrence in cinema through use of the close-up shot where the camera places the viewer much closer to the subject than would necessarily be the case in a social setting. In the video documentation it is evident that participants readily share intimate space with the filmic subject, more so than if approaching a live performer. It might be suggested that this is partially due to the familiarity of the filmic close-up and in this way the participant is effectively enacting their own close-up.

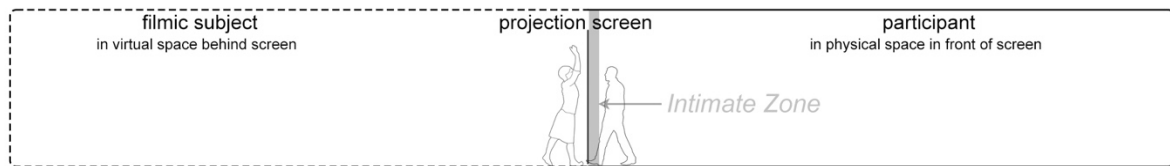


Figure 12e, illustrating Hall's *Intimate Zone* (in grey) on a side view of the *Remote Dancing* corridor.

### ***Engagements in Remote Dancing***

During encounter, the participant is in the process of understanding their relationship to the filmic subject, as they begin to grasp its co-agential nature. This initial phase quickly dovetails into, what I term, engagement, a more embodied state where the participant, who is now more familiar with the experience, begins to interact on a less cerebral and more confident bodily-intuitive level. Engagement represents the more substantial period of participation, where play overrides apprehension, and action is less tentative due to a now-familiar environment/relationship.

The architectural form of each installation has a significant bearing on the nature of both encounter and engagement, though I would suggest its role is most significant during engagement when the participant is more relaxed (and subsequently less restrained). I will next discuss how differing types of engagement can evolve out of the architectures offered by *Remote Dancing*, *Orbital* and *Doing*.

On a relational level both bodies in *Remote Dancing*: participant and filmic subject, are dynamically interconnected, simultaneously moving through their respective spaces (physical and filmic). As the participant moves towards and away from the filmic subject, the filmic subject *actively* moves towards and away from the participant approaching and receding from one another at a combined rate of twice that of their individual speeds. Emphasis in this situation is placed on the space between the movers as a potential site for action which can be affected by *both* bodies. This establishes a different mode of connectivity contrasting with other interactive installations at the time such as Camille Utterback's *Text Rain* (1999), Frieder Weiss' *Blue Flow* (2010), or Memo Akten's *Body Paint* (2009) where the participant moves with respect to the two-dimensional imagery residing on the surface of a

static screen: movement in relation to the screen itself as is illustrated in figure 13 where the a-e, b-e, c-e and d-e represent typical spatial relationships as the participant moves within the work (positions a to d). The collective body of works on the other hand choose a different strategy of engagement, emphasising the three-dimensional filmic space to create an environment which sits alongside the participant's immersive physical space: two spaces interfaced by a projection screen, establishing a greater spatial inter-relationship (illustrated for *Remote Dancing* through the participant-filmic subject positions a-a\*, b-b\*, c-c\*d-d\* in Figure 14). In this situation both participant and filmic subject are given space within which to move, and both have similar spatial freedom.

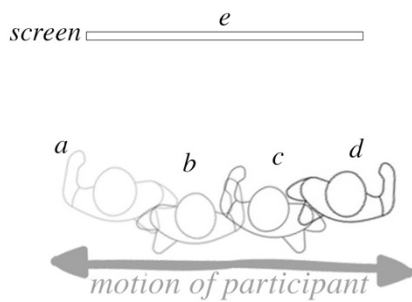


Figure 13. Spatial relationships within an interactive video with little or no perspectival depth (participant moves a through to d in relation to screen content).

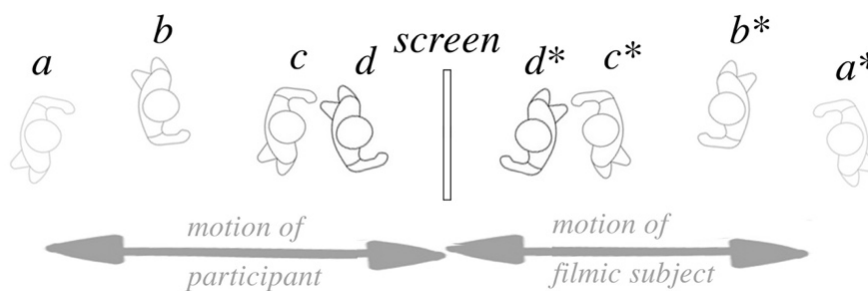


Figure 14. Spatial relationships within *Remote Dancing* (participant moves a through to d, filmic subject moves a\* through to d\*).

An important aspect of this provision of filmic and physical space is that it supports and facilitates not just the actions of both filmic subject and participant, but also their *interconnections*. Rather than

being simply, a flat surface, the projection screen acts as a conduit connecting the two spaces in a continuous manner to support the installation's relational net spanning both spaces in equal measure. As noted by Scott and Barton, it is the intersection of actions, that leads to the creation of agency (2019, p. 68). Thus, provision of space for such intersections to reside can support greater agential action within the work. This is illustrated in figure 14 where, for *Remote Dancing*, focus is redirected away from the screen and onto the relational net of moving elements: participant and filmic subject. The projection surface now slips into the background, becoming less of a feature within the dynamic interplay, whilst the space between participant and filmic subject comes to the fore.

*Remote Dancing* can be seen to resonate with Kozel and Schiller's *Trajets* (1999 [v1] 2007 [v2]). Although differing in form, *Trajets* also depicts dancerly movement projected onto large screens, inviting 'the public to stroll and wander in a kinaesthetically rich mediated environment,' (Schiller, 2012, p. 100). *Trajets* consists of, 'motorised floating screens: a body-screenography of sorts' dispersed around a studio space (Schiller, 2012, p. 100). The screens which Schiller refers to are tall banner-like strips of material suspended from fixed points in the ceiling. Although the screens cannot traverse the space, they are able to rotate about their central vertical axis through the electronically controlled stepper motors at their suspension points (providing one degree of freedom). The screens serve a dual purpose: firstly, by displaying projected imagery, described by performer and academic Steve Dixon as: 'bodies filmed in various textured environments that change and mutate in response to visitor movement, sometimes recognizably figurative and at other times more abstract' (2007, p. 397). Secondly, they align and re-form creating constantly shifting corridors 'carv(ing) space,' which the public move through (Schiller, 2011, p. 106). In respect to the collective body of works, it is this placing of the screens which supports varying interrelationships within the installation. This is illustrated in figure 15 where a more complex arrangement of relationships as are established as a participant moves from positions a through to d: changing from a-e, a-f, a-g, a-h to b-e, b-f, b-g, b-h to c-e, c-f, c-g, c-h to d-e, d-f, d-g, d-h.

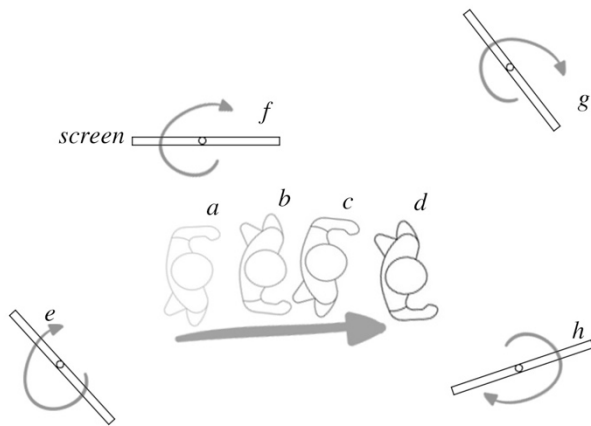


Figure 15. Spatial relationships within *Trajets* (participant moves a through to d, screens e through to h rotate on their axis). For visual clarity only 4 screens are illustrated in this diagram.

In some respect, the physical screens of *Trajets* behave as relational bodies taking on a similar role to the filmic subject of *Remote Dancing*; both convey a sense of agency and facilitate a physical dialogue with the participant. On the one hand *Trajets* places all elements within a shared physical space making their inter-relationships immediately apparent in contrast to the duets in *Remote Dancing* and the other collective body of works that straddle 3D physical and 3D filmic space. On the other hand, the fact that the screens are fixed in location can be seen as partially limiting the relational net of the installation as the filmic subject is not free to travel across the space. In other words, the participant may approach the film but the film cannot approach the participant. In contrast, the filmic subject in *Remote Dancing* can both turn and travel, in a relationship of approaching-receding, through the six degrees of freedom offered by the filmic space in accordance with the spatial freedom of the participant. This leads us to consider what modes of engagement are operating within *Remote Dancing* that support the agencies that arise.

Giving freedom of movement for both participant and filmic subject places a focus on how the elements *move* in respect to each other, and in addition to how they might *position* themselves. Both moving and positioning, facilitated through a provision of space, can represent engagements which underpin the relational net of each installation. The words *moving* and *positioning* also evoke a game,

on the one hand slow and considered as with chess, and at other times faster and more playful, perhaps like basketball. It is this kind of engagement that can be seen to elevate the duet beyond a simple approach/meeting, and more towards that of an ongoing partner dance.

Returning briefly to Rubidge and Schiller's point that their relational web is 'made up of the behaviours of the public, performers and place' (2014, p. 3), we can begin to subdivide *moving-positioning* into two more distinctive engagements: *approaching-receding* and *following-chasing*. For Rubidge and Schiller, an installation's architecture has a substantial influence on the movement it contains. In *Remote Dancing* this is immediately apparent through its linear assemblage of physical and virtual corridors. The main motion in *Remote Dancing* towards and away from the screen as discussed above exemplifies approaching-receding with this action being reinforced not only through the length of the corridor but also through the filmic subject's corresponding mirroring actions. Following-chasing comes into play if the participant stays for longer periods in the installation corridors (and has travelled a complete journey from one end of the corridor to the other and back again). In this situation the filmic subject sustains a distance of ten metres away from the participant. Now as the participant moves towards the screen the previous relationship is inverted as the filmic subject recedes further into the virtual space as in figure 14 (participant-filmic subject positions a-a\*, b-b\*, c-c\*d-d\*). When the participant moves forward to investigate this new scenario their action causes the filmic subject to move away, but at the same time there also is an unspoken invite to follow.

In following-chasing, as with approaching-receding, the participant takes on a clear role within the duet; chasing or following have a social context that adds another layer to the relationship making it more than simply the shifting relationship between two abstract coordinates. In the act of chasing, we are aware of ourselves trying to catch up as the subject attempts to escape, and in following we are aware of ourselves trying to keep a set distance away from the subject by slowing down and speeding up accordingly. Both acts place emphasis on the participants awareness of the creation of agency within the work through the recognition of these roles. In contrast to approaching-receding,



following-chasing adds an extra element. What might initially seem like chasing can suddenly flip to following (and visa-versa) depending on where the participant perceives the agency to be coming from. The interactive technology is sensitive enough to pick up subtle and subconscious actions the participant is not aware of making, causing additional movement in the filmic subject. In this situation, it appears to the participant that the filmic subject is initiating the movement. This aspect of the interactivity will be expanded upon in Chapter 2 under Intimacy and Stillness.

So far, for *Remote Dancing*, I have described the various modes in which the participant and filmic subject move with respect to each other as encounter and engagement (as illustrated in figure 16) and noted how these are influenced by both the installation’s architecture that resonates with Rubidge and Schiller’s description of Choreographic Dwellings, as well as by the interactive technology as elaborated in chapter 2.

	<b>encounter</b>	<b>engagement</b>
<i>Remote Dancing</i>	participant enters and approaches the screen (short duration)	<p style="text-align: center;"><i>moving-positioning</i></p> <p style="text-align: center;">↙                      ↘</p> <p><i>approaching-receding</i>                      <i>following-chasing</i></p>

Figure 16. ways in which the participant and filmic subject move in respect to each other for *Remote Dancing*.

I now examine how the different architectures presented by *Orbital* and *Doing* offer further forms of encounter and engagement.

### ***Engagements in Orbital***

During the presentation of *Remote Dancing* it was evident that its corridor structure created a physically aligned relationship between participant and filmic subject. The physical floor of the corridor was depicted as continuous through perspective, extending into the filmic space, both parties

standing on, what appears to be, the same surface and have similar orientation. The upright-ness of the participant is reflected and reinforced through that of the filmic subject. However, my main concern was that, for the participant, this sense of stability and grounding might to some degree be replicating the comfortable cinema environment that I commented on in the introduction, where audiences might begin to ‘lose consciousness of their body’ (Bishop, 2005, p. 75). In response I proposed to create situations which would wake up the participant’s awareness of their own physicality; where the body might send a ‘hello, I’m still here’, message back to the participant as a reminder of their continued presence. It was my aim that these situations would interrupt any stable or comfortable state, creating a sense of unease in the participant, not something that would cause complete distraction, more a strategy through which to bring their bodily awareness to a conscious level, equal to the attention given to the filmic subject. This detabilsing effect is evident in *Orbital*, *Doing* and *Gravity Shift* (the latter of which is explored in greater depth towards the end of Chapter 2.)

The physical arrangement within *Orbital* purposefully avoids any aligned meeting between participant and filmic subject: the screen is positioned horizontally rather than vertically, sitting half a metre off the ground in a similar manner to a coffee table, and blocks the participant from moving into a central vantage point. As it is circular, the screen also dismisses any rectilinear references to assert correct orientation, it can be viewed from any position around its perimeter with equal emphasis; as such, there is no one central position over any other from which to experience the work. In this way the participant is never fully in a static or balanced spatial relationship. As can be seen in the [video documentation](#) there is always an inherent urgency to move to another position and perpetuate the engagement.

On a practical level *Orbital* presents a filmic subject that abandons stable orientation. There is still a deep and immediate connection between participant and filmic subject as with *Remote Dancing*, only now there is no arrival at a steady state. In some respect this echoes the following-chasing engagement of *Remote Dancing* reminding us to keep up with the filmic subject. However, *Orbital*

offers no resolution, sustaining a perpetual state of instability whilst at the same time engaging the participant within an alternative form of duet. I have termed this aspect of engagement *falling-catching*, reflecting this process of ongoing instability, an aspect that reoccurs through many of my later works including, *Doing*, *Gravity Shift* and *Weighting*. The movements, as the title suggests, take the form of a set of interrelated arcs and curves between participant and filmic subject. Again, and in a different manner to *Remote Dancing*, this arrangement acts to remind the participant of their role within the work. This interrelated movement can be seen on the video documentation and is illustrated in figure 17.

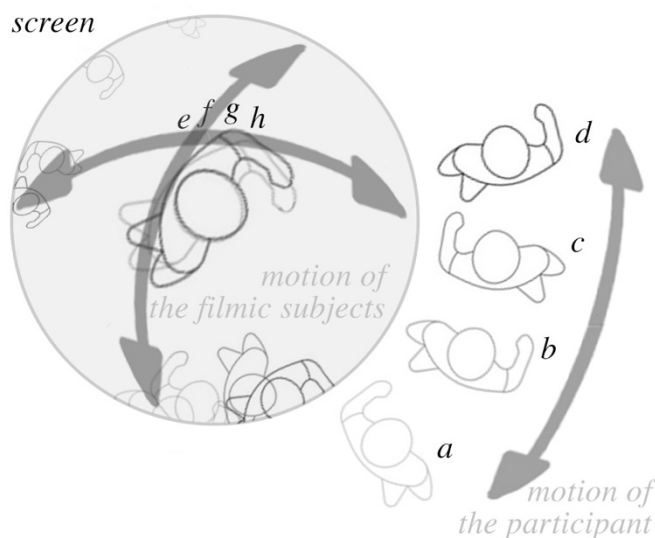


Figure 17. Spatial relationships within *Orbital* (participant moves a through to d, filmic subjects move e through to h).

The destabilisation within *Orbital* can also be seen to resonate with some of Claire Bishop's observations on installation art, specifically with her notion of decentring. Bishop reminds us how, in contrast to the 'centring' effect established in art through renaissance perspective, installation art offers a more true-to-life '*decentred*' experience (2005, p. 13). The viewer is no longer locked into a central unchanging vantage point that ignores their physical movement; they now have freedom to pass through and around the work.<sup>12</sup> In this way, Bishop suggests, installation art seeks to '*confirm* the viewer's sense of self-presence' (2005, p. 26). This of course reinforces how important it is to

consider space for the participant to both move within and view the work. Building on this, destabilising can be seen to not only free the participant from any one vantage point or place of engagement but also takes into account the participant's relationship to their own body. That being said, Bishop does continue to note how postminimalist works of the 1980s, specifically those by Dan Graham and Bruce Nauman, seek to *decentre* the viewer's 'own perceptual apparatus' (Bishop, 2005, p. 71). In particular, Graham's *Present Continuous Past* (1974), and Nauman's *Live-Taped Video Corridor* (1970) bear some similarity in the way they employ disorientation and tension; however, *Orbital* places an emphasis on the participant's bodily engagement and foregrounds the interconnected processes within the installation.

### ***Engagements in Doing***

*Doing* is similar to *Orbital* in its intention to destabilise the participant so that they take notice of their active physicality within the installation. The filmic material in *Doing* is projected onto a curved photo-backdrop covering both wall and floor. As they stand and move on its surface, the participant is always located within the film's frame. As with *Orbital*, *Doing* refuses to assign a centred location for the participant. Even if they were to stand at the centre of the physical floor/screen, the participant would not be granted a centred position with respect to the constantly changing viewpoint of the film.

*Doing* introduces further complex interrelations by increasing the number of filmic subjects within the shot.<sup>13</sup> The work places the participant on stage amongst a company of contemporary dancers who each move in relation to each other through present choreographed material. Additionally, the camera weaves and turns through the work taking the participant through the choreography as it unfolds. The participant now becomes an active part of the dance, countering the traditional front-on view associated with theatre and stage. As with *Trajets*, there are a greater number of changing inter-relationships when the participant travels along their complex route through the work, illustrated in Figure 18, as participant moves from a to d the filmic subjects move from: e to h, from e\* to h\* and from e\*\* to h\*\*.

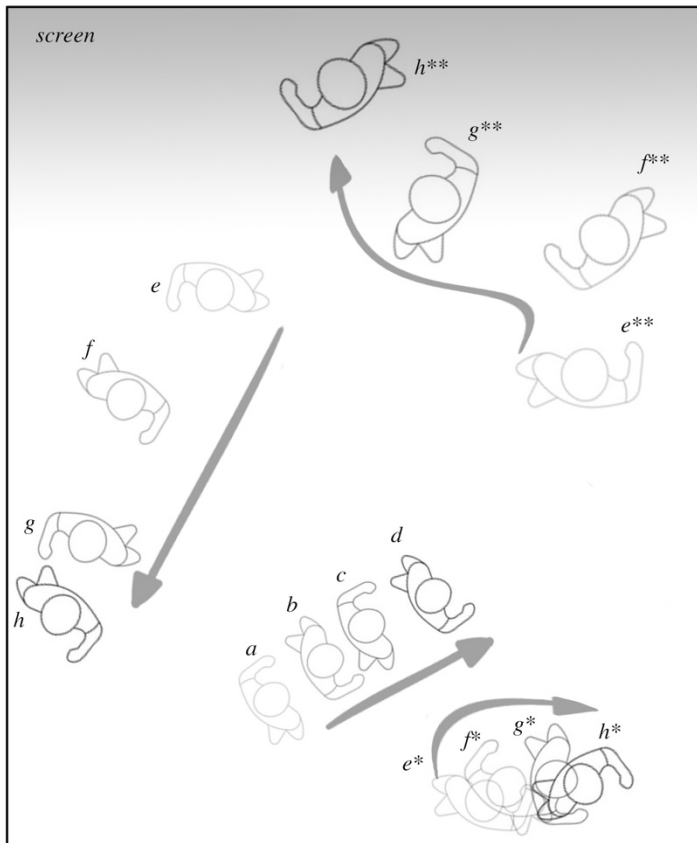


Figure 18. The more complex spatial relationships within *Doing* (participant moves a through to d, as filmic subjects move e through to h). For visual clarity only 3 of the 6 dancers are illustrated in this diagram.

The installation also introduces a tension or disjunction due to the shift in representational scale as the larger-than-life projected dancers tower over the participant. This juxtaposition, coupled with the fact that the participant, being illuminated by the projector's beam, is also visible, reflexively draws attention to their presence within the installation. Here the duet is expanded to include other dancers where the participant's role is perhaps more akin to stepping through a dance rehearsal: a collaborative activity where the participant both leads and is led by the group, offering another form of *following-chasing* engagement. As with *Orbital*, *Doing* also exhibits the destabilising aspects of *falling-catching*, and further, it presents another engagement I name *moving-threading*, in the way the participant is able to permeate and weave through the internal form of the choreography in an active observational manner.

So far, I have discussed how *Remote Dancing*, *Orbital* and *Doing*, each present a wide range of engagements that welcome and embrace the participant’s actions, facilitating agential involvement (collectively listed in figure 19). I also noted how Rubidge & Schiller’s relational net offers an apt lens through which to examine the installations in terms of these engagements. In the following section I continue to explore the role of the participant, drawing attention to how a relational point of view not only acknowledges the body in motion, but also through its stillness, recognising what could appear to be inaction as both intentional and agential.

	<b>encounter</b>	<b>engagement</b>
<i>Remote Dancing</i>	participant enters and approaches the screen (short duration)	<i>approaching-receding</i> <i>following-chasing</i>
<i>Orbital</i>	approaching circular screen (very short duration)	<i>following-chasing</i> <i>falling-catching</i>
<i>Doing</i>	walking onto screen (very short duration)	<i>following-chasing</i> <i>moving-threading</i> <i>falling-catching</i>

Figure 19. ways in which the participant and filmic subject move in respect to each other for *Remote Dancing*, *Orbital* and *Doing*.

### ***Space to Pause***

In the past I have encountered many interactive video installations each expecting a different form of engagement from the public. In one work I was required to blow on a microphone causing the dispersal of seeds from a digital dandelion (Yamada, 2005), for another, Memo Atken’s ‘Bodypaint’ (2009), I made large abstract gestural motions to activate virtual paint splashes onto a projected canvas. Most of these installations required a conscious shift, from the conventional role of gallery viewer to the more active and self-announced role of participant. Such works were well-crafted and

supportive in a way which encourages participation; however, they almost always required a move from a passive outsider to active engager. In response I find myself asking why is it that the participant is only acknowledged when intentionally engaging with these pieces and what does that imply in periods of stillness, dwelling, or contemplation?

Looking back, stillness, slow movement, and contemplation can be seen to provide a basis for my early performance-based work as described in the introduction. For these works, which include *About the Weather* (1996) and *Hypermarket* (2004), focus was given to each performer through their placing and spatiality, of primary concern was the subtly shifting spatial relationships between dancers on stage. The performances continuously foregrounded the positions and physical presence of each performer through stripped-back choreographies devoid of embellished or detailed gestural movement. At the time I was primarily concerned with the exploration of spatial interrelationships, situations where neither performer took precedence over the other, giving attention to all movement taking place on stage, and contemplated as an active whole. As such, each dancer in the two performances became a continuous and active part of the choreography even when seemingly inactive or standing still.

Giddens, provides a way of analysing stillness and dwelling in performative work by placing an emphasis on its capacity to provide a temporal space for reflection and contemplation. Giddens' thinking resonates closely with the slow and contemplative modes of engagement in both my live work and video installations. For her, dwelling is 'inexorably coupled with a slowing down' leading 'to a fascination with stillness' a process which she refers to as 'still-ing' (Giddens, 2019, p. 214). Giddens points out that 'still-ing' suggests 'the possibility... of movement, a space-time for contemplation upon what had been and the potentiality of what was to become.' (Giddens, 2019, p. 222). Although the participant's activity within my installations can be seen as visible physical action from the outside, it is also punctuated by many fleeting moments of stillness that, as with Giddens' work, presents a chance to notice, reflect and contemplate subsequent action. It is this potential for movement to arise out of stillness, that I suggest offers an insight into how the participant within

*Remote Dancing* may contribute to the agencies of the work when they enact less physically dynamic states of activity.

Earlier I noted, how the moving and positioning in *Remote Dancing* can at times evoke the feeling of a game of chess. To progress this analogy, both activities involve moments of movement and stillnesses. In chess it is the stillness which dominates, during which no chess pieces are moved, but underlying planning, calculation and mental re-enactment take place. I would suggest that *Remote Dancing* functions in a similar manner. From the outside, the participant's stillnesses might denote that nothing is happening within the work; however, as Giddens points out, there is 'a potentiality' for movement in stillness that, I suggest, can represent the initiation of agential involvement (2019, p. 222). Moreover, Giddens reinforces this in noting that still-ing, far from being passive, is an 'active' state of being (2019, p. 214). In this respect, although there are frequent pauses in choreographic activity within the installations, these suspensions only *appear* to be inactive, particularly when witnessed by an external third party. In contrast the stillnesses as experienced by the participant are full of potentiality, and perpetuate the duet. When considering *Remote Dancing*, it is evident that the participant travels through many points of, what I suggest are, *active* stillnesses during the encounter phase: from the active apprehension when confronting the filmic subject for the first time, to the tentative, but active, pauses as on approaching Hall's *social zone*, where the filmic subject's proximity could easily lead to surprise evoking a degree of fight or flight response (Hill & Paris, 2014, p. 12). By suggesting the possibility of movement through stillnesses, as perceived by the participant, all modes of being within *Remote Dancing* can in this way, be seen to contribute to the ongoing duet.

Giddens also draws attention to the relational nature of the word dwelling, through its etymological roots. With reference to Martin Heidegger, she notes the similarity between the German words for dweller and neighbour. The literal translation of neighbour ('nachgebauer') is 'near-dweller' which inherently places dwellers in relation to each other (Heidegger in Giddens, 2019, p. 216). Employing the concept of 'dwelling' with its etymological associations to my collective body of work,



acknowledges further relational states that the participant engages with. Dwelling within the installations inherently places each participant *next to* other dwellers, and by doing so can create stillnesses that offer up the potential for agential action to occur.

The idea of still-ing within the installations is expanded upon further when I discuss *magnification* as a form of engagement in Chapter 2.

## **5. Summary and Conclusion**

In this chapter I suggest that, through reference to Scott and Barton's reflections on intermediality and Rubidge and Schiller's relational net, agency arises through interconnected aspects of *Remote Dancing*, *Orbital* and *Doing*. By focusing on space to embrace all action, be it dancery or everyday, all activity within the installations can start to be seen as agential, including active stillnesses, as noted by Giddens. Further, by presenting these interconnections as duets the installations can seek to unify the differences between physical and filmic spaces, further knitting together the relational elements.

I have highlighted how the duet can be divided into two parts: encounters and engagements: encounters revealing a detailed range of agential phases the participant passes through as they approach the filmic subject in *Remote Dancing*; engagements identify ways in which agency can arise through moving-positionings that includes approaching-receding and following-chasing. Furthermore, by causing the participant to be conscious of their own agential impact on the works through destabilisation, both *Orbital & Doing* introduce further engagement couplings including: falling-catching and moving-threading.

In the next chapter, *Modulation and Agency*, I look deeper into the nature of connectivity within the collective body of works, focusing principally on engagement, and analysing how digital sensing and processing techniques can extend and further enhance the participant's sense of agential action within the installations. I introduce the idea of *Modulation* arising out of the VJ technique, video scrubbing, as a process to facilitate further forms of engagement within the duets.

## Chapter 2

### *Modulation and Agency*

## **1. Introduction**

This chapter explores the interactive processes which occur within my collected body of work and how, through these, the installations support and develop creative agencies. With particular attention to *Remote Dancing*, *Orbital*, *Doing*, and *ByPasser*, I reflect on the underlying techniques of video scrubbing and linear mapping, highlighting how these methods can encourage agential engagement. I propose the idea of modulation as process to recognise and facilitate the duet between participant and filmic subject, examining the ways in which each affects the movement of the other. In discussing modulation, I draw on Scott and Barton's writing, acknowledging the participant 'as an activating "agent"' who brings about agency through their engagement within the work (2015, p. 2). I also refer to William W. Lewis, in particular his ideas of affective and tangible agency, theatre academic Gareth White and dancer Steve Paxton. Within my works I identify four further forms of engagements differing in form from those detailed in chapter 1. These additional engagements deal less with spatial relationship between two bodies (resulting in the 'couplings' such as following-chasing), and more on the interactive experience of the participant, focusing on how they act and perceive action within the installations. These are categorised as: Temporal Magnification, Investigation, Intimacy and Stillness, and Reaction. I end the chapter by introducing *Gravity Shift* as an attuned investigation into Reactive engagement.

## **2. Background**

The interactive process behind *Remote Dancing* and subsequently *Orbital*, *Doing* and *ByPasser* arose out of a meeting between two new techniques prevalent at the beginning of the 2000s. The first of these techniques was video scrubbing, 'the shuttling of audio or video material forward or backward while previewing' (Adobe, 2016), a term originally rooted in analogue tape where the editor would physically scrub the tape back and forth over the playback head. Video scrubbing is a linear activity in the sense that to get to a particular position in a film we need to move (scrub) through the in-between material either by forwarding or rewinding. There is no sudden jump or cut in the process.

The second technique that had recently become available was, ultrasound distance sensing. This is described by the manufacturer Keyence in the following way:

As the name indicates, ultrasonic sensors measure distance by using ultrasonic waves. The sensor head emits an ultrasonic wave and receives the wave reflected back from the target. Ultrasonic Sensors measure the distance to the target by measuring the time between the emission and reception.

(Keyence 2021)

The process of ultrasound sensing is similar to the way bats navigate through space. The closer the object, the shorter it takes for the sound to return (see figure 20).



Figure 20. Illustration of ultrasound measuring linear distance (animation)

This form of distance sensing, like video scrubbing, is also linear, meaning that distance is measured in a line only along one axis; detecting movement travelling towards or away from the sensor, but not across its narrow field of view.

### 3. Video Scrubbing

At the time of *Remote Dancing*'s development (2002-2004) live digital video scrubbing had just become possible though the recent advances in computing power. This technique was quickly adopted by the video jockeys (VJs) who, in the context of club culture embraced real-time visuals as a way to add to the in-the-moment live clubbing experience. Artist and academic Chris Salter notes this

evolution where the screen became a ‘performative medium in its own right,’ arising out of DJ culture, expanded cinema, early video art and digital technology to form, ‘new practices of live cinema,’ that were, ‘neither cinema nor theatre’ (Salter, 2010, p. 115). Invariably VJ sets would involve the manipulation of found or reappropriated footage often from well-known feature films displaying the gestures and movements of actors and dancers. VJ’s would tend to loop and scrub these clips back and forth to echo and respond to the rhythms of the accompanying club music. What struck me about this process was not only its temporal aspect: scrubbing pre-recorded movement backwards and forwards in time to alter the dynamics of perceived movement; but the spatial manipulation, which is more apparent in footage where a performer travels within the frame (see figure 21).

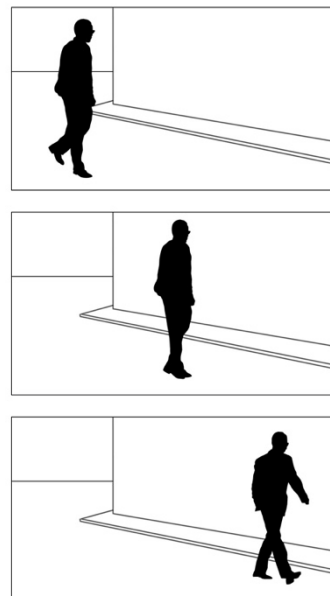


Figure 21. Video clip depicting a subject’s movement through a static frame

The scrubbing of pre-recorded footage containing travelling motion opened the technique as a choreographic tool because the forwarding and rewinding of a clip affects the movement of figures through space, the main subject of chapter 1. Furthermore, it became apparent that the perceived motion within the frame was not limited to the subjects’ motion but also included the movement of the camera itself. For example, if a film was originally shot using a camera tracking moving from left to right, scrubbing the resulting clip forward would effectively move the perceived background from

right to left (as the camera moves to the right), conversely, scrubbing the clip backwards would move the background in the opposite direction. This effect is illustrated through scrubbing a clip footage from *ByPasser* and is explored further in Chapter 3. The interactive potential offered through video, relates to its malleability, which serves to challenge forementioned traditional cinematic conventions, specifically that of audience passivity and fixed, directed gaze.

The action of scrubbing through a sequence of consecutive images can be seen to resonate in, academic, Lars Elleström's usage of 'partially fixed sequentiality' within intermedial theatre (Elleström, 2019, p. 11). Scott notes how Elleström's term reflects the 'nature of a rehearsed live performance' (Scott, 2019, p. 101), giving a degree of freedom to the timing and delivery of a set sequence of material. In a similar way for video, the VJ chooses how quickly each sequential image is revealed, and to some extent in what order (reversing or forwarding), bringing 'its live temporal manifestation' into 'the now of live performance' (Scott, 2019, p. 101).

Scott uses the term 'lively', to describe a state of partially fixed sequentially, pointing out how 'we *feel* the recordings differently because of their activation in the live space' (Scott, 2019, p. 101).

What makes video scrubbing such an effective technique for interactivity is that the engagement it establishes is ongoing. The VJ affects playback continuously, in contrast to many forms of interaction where a participant executes an momentary action in order to evoke a discrete response. We feel video scrubbing as an ongoing live manifestation. The live malleability it offers leads to an ongoing interweaving of temporalities between pre-recorded and live events. As with a dance duet, both VJ and filmic material move together, one does not wait for the other to react before further action. Their motion occurs and unfolds simultaneously. I suggest that it is through these intersecting 'elements in play' that the VJ '*enact[s]* agential action and "iterative change"' (Scott & Barton, 2019, p. 69 original emphasis). The motion made by a VJ or editor as their finger moves over a mousepad or hand spins a turntable is expressive and ongoing, similar in manner to a musician's engagement with their instrument.

#### 4. Linear Mapping

I return briefly to the second technique, ultrasound distance sensing. This recent technological development offered a way of extending the VJ's motion beyond hand-focused computer interaction to embrace whole-body movement through space. I first used this kind of distance sensor in my earlier work *The Public Record* (Mayes & Sandiland, 2002) and *Frozen Progress* (Sandiland, 2001). However, *Remote Dancing* marked the first time I had used it to affect a clip of a dancer's movement. Between 2002-2004 I devised and constructed the customised system used in *Remote Dancing* employing a number of ultrasonic sensors working in parallel so as to extend both the range and accuracy beyond that of other commercial systems available at the time, such as the popular "Soundbeam" (Soundbeam, 2018). When working at a range of ten metres individual sensors without software processing would offer a four-centimetre margin of error; yet when working in parallel this margin of error was reduced to just one centimetre.

The video clips used in *Remote Dancing* depicted the filmic subject, a dancer, executing a travelling dance sequence towards the camera. Scrubbing along the timeline not only moves the filmic subject forward in time but also closer to the camera. The beginning of the clip displays frames from where they are 10 metres from the camera, whilst the end shows frames when they are much closer (see figure 22).

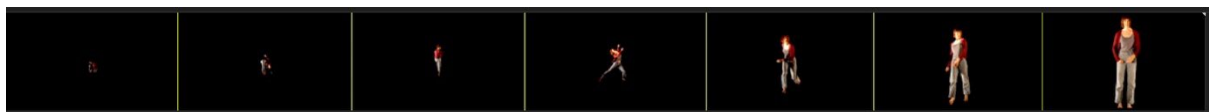


Figure 22. Progression of movement towards the camera along the timeline

This recently filmed clip for *Remote Dancing* source material illustrates the travelling dance sequence. The *Remote Dancing* sensors directly map the participant's position within the ten-metre corridor of the installation to the video clip's playback position. As the participant moves down the corridor they scrub the playback forward, bringing the filmic subject closer. As they travel backwards the opposite happens moving the filmic subject away. What inspired me about this relationship was

the poetic symmetry, offered through technical limitations, of mapping two linear paths of motion to establish a simple choreographic relationship. As with my early stage-based work, *About the Weather* (1996), the stripping back of complex environments allowed for presentation of simple spatial possibilities focusing attention onto the interrelationships within a duet. Subsequently movement within *Remote Dancing* resides as a duet; a composite form which expands and contracts through time, as the participant approaches and retreats from the screen. The simplicity of the linear relationship is deceptive offering far more than a sequence of placements in space. Spatial position and bodily movement are intimately knitted together, and there are an infinite number of ways to move from one position to the next. The participant's location within *Remote Dancing* is dynamic, introducing both speed and acceleration, opening the potential for a vast range of ongoing expressive engagement. As Scott notes, 'each performance, even of the same material, will inevitably have temporal variations, however slight' and each engagement is 'a distinct experience of time' (Scott, 2019, p. 92). Further information on the technicalities of ultrasound sensing and video scrubbing used in my installations can be found in Appendix 2: Technical Details.

## **5. Immediacy and Continuous Engagement**

To support and encourage a deep and meaningful engagement within *Remote Dancing*, I devoted a significant amount of the research time towards the technical sensitivity of the work, allowing it to engage the subtle nuances of participant action. My aim was to create as transparent an interface as possible and not to draw attention to the facilitating technology. My intention was that the participant's focus should be placed purely on the duet itself without distraction. This kind of embodied interaction is also noted by media scientist Paul Dourish through his reference to Heidegger, in the term 'ready-to-hand, [where] the technology itself disappears from our immediate concerns [and] we are caught up in the performance of the work' (2004, p. 109).

As part of the development I also placed a focus on how quickly the participant intuitively understood the rules or behaviour of the installation's interface. White notes how any form of new interaction presupposes a period of learning on *how* to engage with the work (2019, p. 140). White illustrates this



through reference to computer gaming where ‘non-gamers’ are first concerned with ‘*how to do things in the game*’ before they can engage ‘in *what they are trying to achieve*’ (2019, p. 140 original emphasis). During the research leading into *Remote Dancing, Doing, Orbital* and *ByPasser* I did not want the participant to spend most of the time either being frustrated (and distracted) by learning a complex interface, nor marvel over the magic of the interactivity. The overarching purpose of the technology was to engage the participant in as quick and as intuitive way as possible so as not to lose the sense of spontaneity within the work.

To create an environment which facilitates both intuitive and *ready-to-hand* interaction I looked to refine two aspects of the interaction: not only increasing sensitivity when detecting the participant’s spatial position, but also reducing the latency of the interactive technology.<sup>14</sup> Having lower latency implies that little or no perceptible time lag between action and reaction, leading to an immediacy between the participant’s movement and what is seen on screen. As was mentioned earlier, VJ scrubbing achieves both aspects by supporting an ongoing engagement using real-time control. In this situation the filmic material unfolds *with* rather than *after* the VJ’s actions. This *with-ness* or continuous engagement, became a fundamental part of *Remote Dancing, Doing, Orbital* and *ByPasser* in contrast to many interactive installations formed of discrete action-reactions such as Gary Hill’s, *Tall Ships* (1992) or Raphael Lozano-Hemmer’s work, *Under Scan* (2005). Hill and Lozano-Hemmer’s installations create the dramatic and unusual *encounters* but do not necessarily place importance on the development of engagement (as discussed in chapter 1 with respect to *Remote Dancing*). Once triggered the video in both Hill and Lozano-Hemmer’s interactive installations continue to play regardless of the participant’s subsequent behaviour.<sup>15</sup> Artist and academic Nathaniel Stern echoes the significance of continuous engagement in his book, *Interactive art and Embodiment*, ‘with interactive art’ he suggests ‘the potential of the body is felt as a *continuous* variation: always happening, always about to happen’ (2013, p. 14, my emphasis). Further to this, Scott also places an emphasis on the continuous nature of engagement within an intermedial environment through reference to Barad’s “‘ongoing reconfigurings’” characteristic of a “‘lively’ space’, where performer or participant continuously ‘intra-act’. Here, Scott deploys Barad’s term ‘intra-action’, as opposed to

‘interaction’, to highlight how agencies emerge within the evolving moment of ‘intra-action’, rather than preceding or resulting from a fixed relationship between the participant, the screen and the filmic subject (2015, p. 1)

## **6. Modulation and Feedback**

So far, I have outlined the apparatus and technology of *Remote Dancing*, I will now explore in greater depth the process itself by questioning the ways in which the characteristic properties of participant and filmic subject combine to form a duet. To do so, I examine the idea of modulation, more commonly associated with electroacoustics, and investigate how this, together with feedback, can establish an ongoing and sustaining duet out of which arise four specific forms of engagement.

### ***Modulation***

When I first began work on *Remote Dancing*, I assumed that the relationship would be imbalanced and that control would lie entirely with the participant using their movement to manipulate video playback, causing the filmic content to do whatever they wanted. While this was to some degree true, on closer examination it transpired that the filmic material also had a significant impact on the participant’s actions. Whilst the participant can affect *when* and *how* the filmic subject executes pre-recorded movement; they cannot change *what* the filmic subject does. If part of a clip depicts a dancer raising their right arm, there is nothing the participant can do to raise the dancer’s left arm instead (unless this happens at some other point in the film); the actions contained within the film cannot be changed, though as discussed, they can be revealed in a multiplicity of ways. In contrast to the filmic subject’s sequence of bodily ‘shapes’ as defined by Laban/Bartenieff analysis through ‘the changes in the volume of the body in movement’, their ‘dynamic qualities’ (or ‘effort’, also with respect to Laban/Bartenieff) can be directly affected by the participant’s actions, speeding up, slowing down and reversing the filmic movement, as shown in figure 23 (Fernandez, 2015, p. 143 & 181). This dynamic or temporal aspect, where pre-recorded actions are brought into the present, is a frequent concern of intermedial theatre. Scott notes how one might ‘enliven the technologically recorded past’ through playing ‘with its existence in the present’ (2019, p. 107). She also suggests how this play or

interchange has the potential to ‘generate feeling states and meanings for an audience’ (Scott, 2019, p. 91).

The extent to which the participant has control within the work was succinctly illustrated through a comment made by a local ballet mistress who visited *Remote Dancing* at the Metropole Gallery in Folkstone 2004. Whilst emerging from one of the installation corridors after only a short period of time I asked her how she found the experience. She replied stating that, in her view, the work was not interactive as the dancers (filmic subjects) did not behave as she wanted them to. In other words, being a classical ballet mistress, her desire was to impose the choreography *upon* the dancers rather than duet *with* them as equal or collaborating co-agent. Of course, had they done so, the installation would not have been interactive in the sense of a duet where both parties can affect the engagement, more a situation of one-sided control. As discussed in chapter 1, just after entering *Remote Dancing*, I suggest that duet can be seen as co-agential; the participant’s presence and actions seemingly acknowledged and reciprocated by those of the filmic subject.

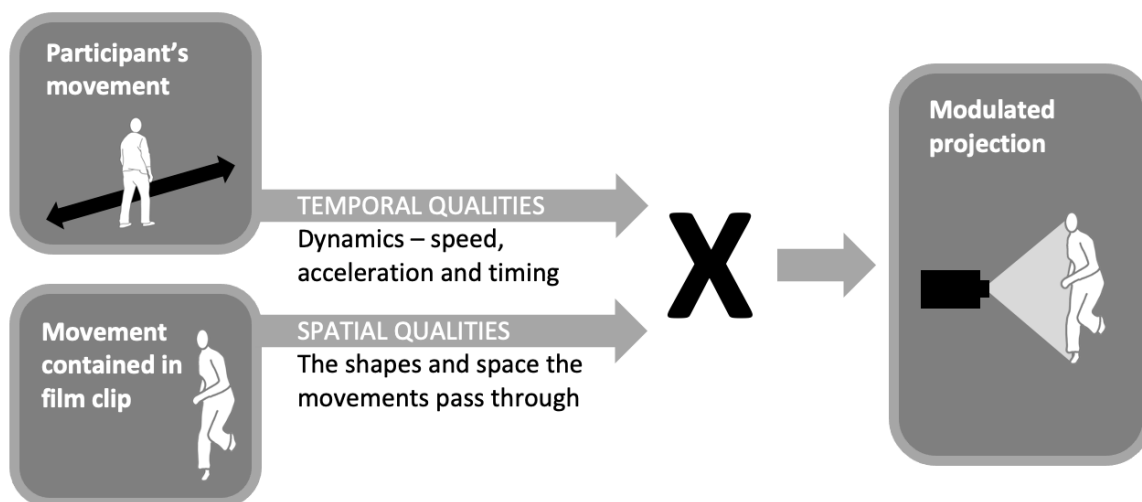


Figure 23. Illustrating how the participant’s dynamic modulates filmic movement. Mathematically, modulation can be seen as a form multiplication in the way it combines the temporal and spatial qualities, which is why I have represented the process with an ‘X’.

In order to describe these interactive processes, I have chosen to adopt the term, modulation, more commonly used in the context of electroacoustic music. Curtis Roads, media arts academic, illustrates modulation through common examples such as tremolo and vibrato, describing it as the ‘means that some aspect of one signal’ changes ‘according to an aspect of a second signal’ (1998, p. 215). In the case of music, Road’s ‘signals’ are sound vibrations, such as the middle C of a piano oscillating at 262 times a second or the much slower oscillation of the cellist’s finger adding vibrato to this sound. Modulating one signal with the other leads to the production of a sound, which, whilst differing from its sources, retains and reflects each individual quality: i.e. the middle C is still perceived as such even though vibrato has been added. In this way, although objectively we may be experiencing only one resulting sound, we are able to perceive the two qualities it contains. It is for this reason I find modulation the most apt term to use when describing video scrubbing, particularly when considering the visual parallel between a cellist moving their finger on its string to create a vibrato and the VJ sliding their hand on a turntable. Both overlay expressive qualities onto already existing audio or visual motion, yet the resulting modulated form clearly retains properties of both sources without diluting either.

In manner similar to that discussed by Scott, it is evident that the participant within *Remote Dancing* possesses an ‘agential presence’, not just in their live presence, but also in their ‘role as an activating “agent”’ (2015, p. 2). Through their motion the participant enlivens the pre-recorded actions of the filmic subject, choosing where and how the filmic subject enacts these actions. In doing so the participant engages in a choreographic process, being ‘responsible for the ‘relationalities’ that emerge and how they emerge’ (Scott, 2015, p. 2). This echoes back to the discussion in Chapter 1 around Rubidge and Schiller’s relational net, that places an emphasis on the participant’s agential contribution at all times within the choreographic content of the work. Importantly, the agential role of the participant is not diminished by modulation. As with the earlier example of musical vibrato, the process of modulation does not blend two aspects into a grey in-between state, instead it forms a composite where, in *Remote Dancing*, both temporal qualities of participant and spatial qualities of

the filmic subject co-exist together. In Baradian terms, these aspects can also be seen as ‘entanglements’ (Scott, 2015, p. 2), both separate yet intimately linked.

### ***Perceiving Modulated Action***

During the *Remote Dancing* research period, it became apparent through the act of observing and speaking with the participants, that because the participant could feel their own motion strongly reflected in the movement of the filmic subject, they gained a greater sense of agency within the installations. This conclusion arose out of experiments using a range of choreographed sequences within the film clips. As with most interactive work, the participant is encouraged to continue their engagement if their actions are acknowledged, and they can see that what they are doing is affective.

Up to now I have separated temporal and spatial qualities attributing these to the participant and filmic subject respectively. However, the filmic subject can, and often does possess temporal qualities of their own. This would be the case if, during filming, a moving subject suddenly changed direction, slowed down or came to a halt. These situations raised problematic issues during the research period. At the time it was observed that the participant’s sense of agential contribution, the perception of how much they affected the resulting duet, was significantly reduced if the movement in the recorded film also possessed a changing dynamic: the clashing of dynamics from both sides tending to dilute the overall sense of engagement (see figure 24).

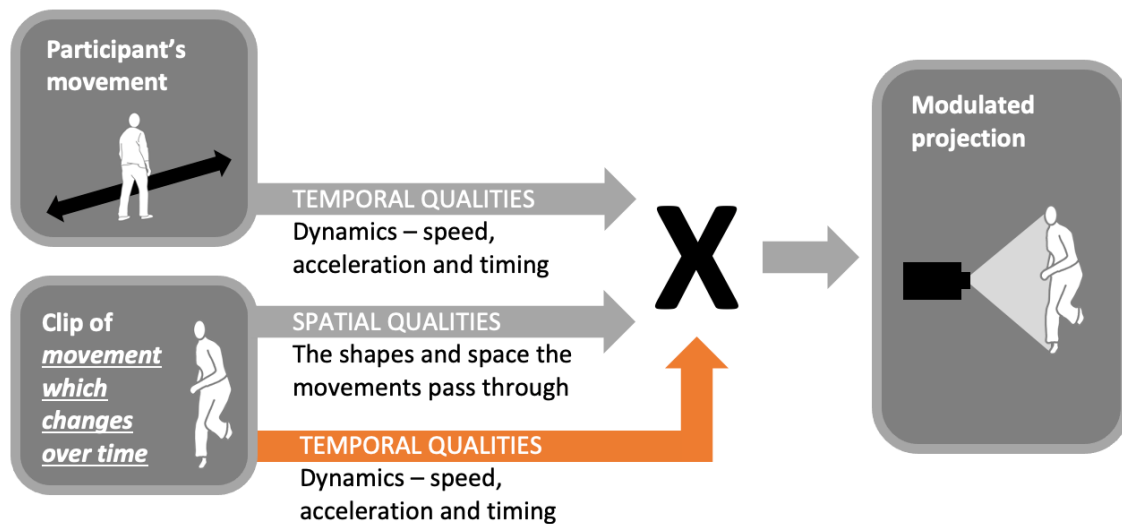


Figure 24. Illustrating how in *Remote Dancing*, a film clip with changing dynamics adversely affects the resulting projection, introducing unwanted temporal qualities.

Under these conditions participants found it difficult to discern whether their movement was having much effect on the actions of the filmic subject. Upon reflection it was realised that the first film clips made for the installation were made from choreographed movement which featured changes in pace and rhythm as one would for live stage presentation. To remedy this, all future movement for the film sequences was choreographed with an emphasis on even motion throughout, much like a tai chi sequence with its importance on continuity of inertia. This rechoreographing shifted much of the temporal influence back onto the actions of the participant, as illustrated in figure 25.

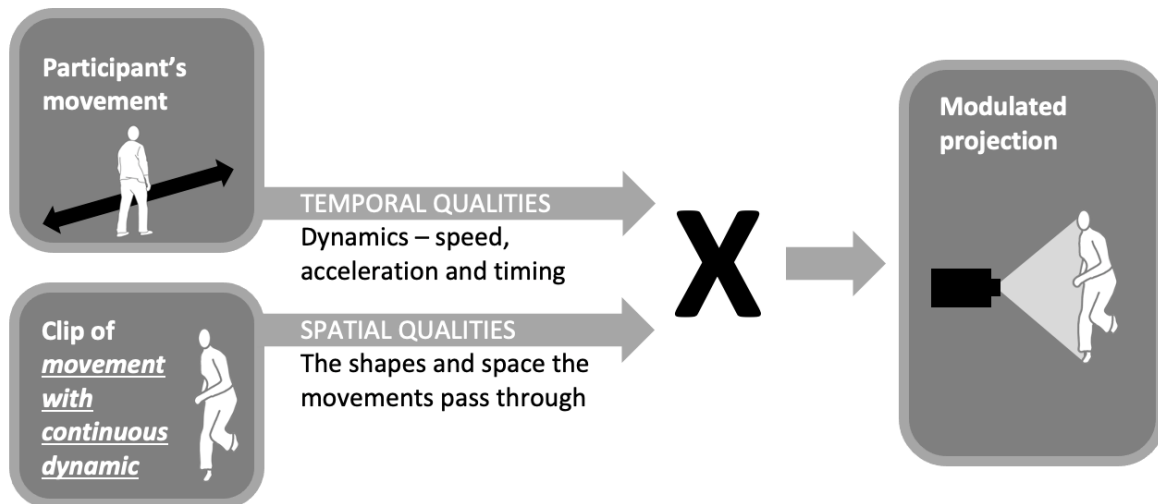


Figure 25. Illustrating how in *Remote Dancing*, a clip with continuous dynamic shifts the temporal contribution back to the participant's movement.

### ***Feedback***

By including the participant's perception in the process (of modulation), it becomes apparent that the installation creates a form of feedback loop (see figure 26): action creating reaction, which, in turn produces further action leading to a self-perpetuating state of change.

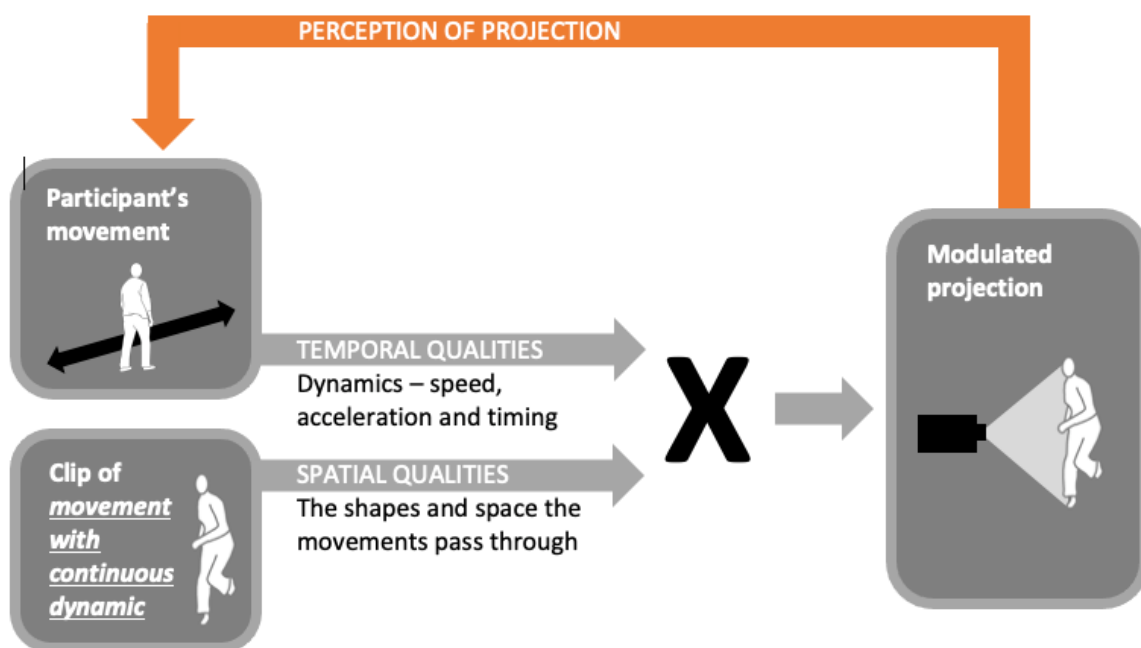


Figure 26. Illustrating how the feedback loop supports an ongoing the duet within *Remote Dancing*.

In advance of elaborating further on the details of this feedback as assorted *engagements*, I wish to emphasise how, in this feedback loop, the participant engages in an iterative process, continuously trying out movements to see how the filmic subject reacts, and offering further movements based on that reaction. Interestingly this process resonates closely with Barad's description of agency as 'the enactment of iterative changes' (Barad cited in Scott & Barton, 2019, p. 69).

## **7. Developing Engagements**

Having established the underlying mechanisms and processes that support encounters and engagements within the works: *Remote Dancing*, *Doing*, *Orbital*, and *ByPasser*, I now take time to identify and detail the different engagements each facilitates. As in Chapter 1, my aim is to highlight the particularities of the engagements showing how each one supports and accents agency arising from participant interaction. These subsections cover engagement through: Temporal Magnification, Investigation, Intimacy and Stillness, and Reaction.

### ***Temporal Magnification***

Temporal Magnification places emphasis on how the participant examines in greater detail the filmic subject's movement frame by frame. Unlike conventional film the participant in *Remote Dancing* is able to take active decisions, moving slowly through the subtle details of the filmic subjects' sequences, dwelling in places they find interesting and moving forwards and backwards in small shifts to achieve a closer look into the intricacy of the subject's actions. This engagement not only 'enliven[s] the technologically recorded past' bringing it into the present. (Scott, 2019, p. 107), but it also modulates it, stretching and teasing past actions like putty. The participant in this situation is presented with, and 'actively *play[s]* with time' itself (Scott, 2019, p. 91). From this point of view, the installation can be thought of as a temporal magnifying glass through which the participant is able to zoom in and out of the filmic subject's movements.

The idea of temporal magnification was developed further in *Doing*, the installation developed after *Remote Dancing*, by using clips with a higher frame rate (100 frames per second as opposed to the



standard 25 frames per second). This improvement, [illustrated here](#), increased the installation's temporal resolution adding greater detail to the movement and smoother, more continuous playback when the participant travels at slower speeds.<sup>16</sup> During the making of *Doing* it was also noted that the participant's movement affected the perceived intentionality of the filmic subject: the slower they moved, the slower and seemingly more intentional the filmic subject's movements became, adding another strand to the affective qualities presented within the installations. The relationship between slow motion and intention has recently been documented by social psychologists Eugene Caruso, Zachary Burns and Benjamin Converse through their research into human behaviour mediated through digital technology (2016). Through enacted situations, Caruso, Zachary and Converse 'demonstrate that slow motion replay can systematically increase judgments of intent because it gives viewers the false impression that the actor had more time to premeditate before acting' (2016, p. 1).

In addition to perceived intentionality, it was noted that temporal magnification also affected the filmic subject's perceived inertia. The slower the participant's motion, the more inertia the filmic subject would seem to have, an observation which became more apparent following the higher temporal resolution used in *Doing*. This effect is different to witnessing slow motion film in a conventional film setting as cinema auditoriums are not necessarily intermedial environments. However, *Doing* and *Remote Dancing* are intermedial spaces where the participant is conscious of experiencing film set against their own movements taking place in real-time. Scott reminds us how time in intermedial theatre 'is a crucial tool in generating feeling states and meanings for an audience, which they experience through and because of the mixing of media in a live space' (Scott, 2019, p. 91). It is also interesting to note how Giddens' comments on 'still-ing' in Chapter 1, adds to this discussion in the way she describes 'still-ing' as a state of 'slowing to notice' echoing the slowing down and noticing of the filmic material through temporal magnification within the installations (Giddens, 2019, p. 214). Giddens goes on to assert how 'still-ing' in dance performance also draws our attention to time itself." (Giddens, 2019, p. 222).

To summarise, the engagement through temporal magnification allows the participant to explore deeper into the details of the filmic movement. At the same time the participant's actions affect the playback qualities of the filmic subject altering both perceived intention and perceived physicality. This temporal play forms an iterative process which sustains and supports the ongoing duet between participant and filmic subject.

### ***Investigative Engagement***

Through investigation the participant tests out the reactions of the filmic subject, typically in short bursts (this can be seen in any of the previously referenced video documentation for *Remote Dancing*, *Doing* and *Orbital*). This is a tentative and playful provocation conducted in an inquisitive manner; a kind of "how will they respond to this" approach which, over time, gives a greater insight into the filmic subject's movement and perceived character. Engagement through investigation bears similarity to temporal magnification, and it could be said that the participant investigates movement details of the filmic subject through temporal magnification. However, investigation is an engagement with intention, in its own right.

As highlighted above, in an interactive work, the participant first needs to understand *how* to engage before they can focus on *what* they are doing (White 2019, p. 140). In *Remote Dancing*, *Doing*, *Orbital*, and *ByPasser*, understanding *how* to engage is itself an investigative act involving explorative action and reaction. Furthermore, the *what*, the participant is doing is never clearly defined; is it dance or pedestrian action, is it abstract or expressive, or is it functional? Through their interaction the participant is constantly seeking how to behave whilst negotiating what it is they are doing. There is therefore no clear distinction between either mode of behaviour. From this perspective, what the participant is doing might be thought of as an active investigation as they continuously explore how to engage with the work.

### *Intimate Engagement and Stillness*

To explore engagement through intimacy and stillness I begin by looking at the slower movements, pauses and points of waiting that the participant experiences in *Remote Dancing*, *Doing*, *Orbital*, and *ByPasser*. Contrary to appearance, these moments of dwelling are not states of disengagement from the installations, rather they are positions of focus, contemplation, and active observation. To return briefly to Giddens' concept of 'still-ing', these states are 'full of intention and ownership' (Giddens, 2019, p. 214), they contribute just as much to the agencies arising from the works, offering up further modes of engagement. It is through this slowing down and dwelling that participants can begin to notice the more subtle engagements that take place at an intimate level.

For *Remote Dancing*, this pausing or dwelling first happens at the beginning of their encounter, when the participant enters the corridor. At this point the participant usually stands still, establishing their orientation before moving towards the filmic subject. Although this stillness might be perceived as simply waiting, it is a more substantial act as the participant has walked into a position placing themselves in relation to the filmic subject. This, as Joy suggests, is in itself a choreographic act (2014, p. 1) and can be seen as the beginning of a duet. The state of stillness within the duet gives opportunity for the participant to notice and register the more subtle actions both external and internal, on screen and in their own body, shifting attention to details that may not normally noticed in everyday activity (Giddens, 2019, p. 231, p. 216). Being given the opportunity, though, does not necessarily mean that the participant always notices this activity; however, the mechanisms at play within the interactive works actively draws attention to these details. To explain how this happens, I draw on what Steve Paxton calls 'the small dance of standing' (Stark Smith, 1985).

Paxton notes how we are never wholly still when standing upright but engaged in a small dance, where the subtle subconscious actions of our muscles constantly seek to rebalance the body; echoing back to the destabilising engagement, falling-catching from Chapter 1 (Stark Smith, 1985). The small dance is an intimate activity, mostly invisible to external witnesses, and one which is only shared when in direct physical contact with another, say in a contact-based dance duet.

In *Remote Dancing*, the subtle and subconscious movements of the participant are picked up by sensors set at the height of 80 centimetres from the floor, in line with their centre of gravity where the movement is most pronounced. These movements subsequently affect, or modulate, the actions of the filmic subject. In other words, the participant is witness to their own intimate actions, even though they may be some distance away from the screen. Even the subtlest subconscious movement of the participant has a noticeable effect on the filmic content: a shift of just one centimetre forwards or backwards is enough to cause the video to change by a frame or two. This spatial displacement shifts action that might only be experienced within Hall's 'intimate distance' of less than one and a half feet away (1966, p. 116) to all positions along the corridor, establishing and making visible intimate engagement beyond close proximity.

### ***Reactive Engagement***

Engagement through reaction examines the participant's movements as influenced by the filmic subject's actions. These engagements are not necessarily part of a slow or considered activity, but are more impulsive or immediate, drawing more on the body's instinctual reflexes in response to direct action. I divide reaction into two aspects, those that echo, and those that differ, made in response to the movements of the filmic subject. To begin with I examine echoed movements.

The filmic subject, though modulated by the participant's movement, retains detailed shapes and forms executed by the performer during the original filming. For *Remote Dancing*, these are mainly the leaps, turns and articulations whilst executing a choreographed dance sequence. These movements are characterful in both dance style, and in this way, they present an aspect of the performer's intentionality, for example, playful or inquisitive. It was evident during our research and development, that the participant, when watching and interacting with the projected performer, tended to echo these actions physically, empathising with and reflecting ways in which the filmic subject leaned, turned and moved. If, for example, the filmic subject lifted an arm, there would often be a corresponding echo as the participant unconsciously moved or lifted their own arm in conjunction.

Dancer and academic Scott deLahunta echoes this experience in his description of the installation; ‘Their exuberant movement encourages an unusually strong empathic connection to the projected image that elicits sympathetic movements from the viewer/participant’ (2008, p. 230).

This process, the echoing of movements enacted by another person, be they on screen or in a live scenario, can be seen to have similarities to ‘kinaesthetic empathy’ as described by academics, Dee Reynolds and Matthew Reason (2012). Through kinaesthetic empathy Reynolds suggests that, when witnessing human movement, observers feel as if ‘they are participating in the movements they observe’ (2008). As detailed in Chapter 1, the installations place an emphasis on provision of space for the participant to move within. If the participant is given space, and is upright and ready to move, I would suggest that they are more likely to physicalise any kinesthetic response to what is seen on screen than when seated in an auditorium or in an artwork that does not beckon or support physical engagement. In this way the spatial design of the installation in combination with kinesthetic responses can act to encourage engagement within the installations, allowing for greater agential action. This interweaving of spatial design and kinesthetic qualities is also a significant factor for Rubidge and Schiller offering a means through which to engage the participant/public. Through their expanded notion of choreographic space, they note how choreographic dwellings can engage, mobilise and transform ‘participants’ kinesthetic sensibilities’, imbuing them ‘with kinaesthetic agency’ (Rubidge & Schiller, 2014, pp. 2-3).

Having detailed echoed actions, I now focus on other movements made in reaction to the filmic subject which differ to what is presented on screen. These non-echoing movements can range from playful dancerly response to reaction bordering on evasive or defensive, where the filmic subject’s movement takes the participant by surprise causing a sudden or more instinctual response. The latter reintroduces earlier considerations from Chapter 1 in connection with Hall’s examination of interpersonal behaviour at close proximity. (1966). Non-echoing movements could be seen to arise through the ‘embodied feeling[s] of response to “real” action’ which interdisciplinary scholar/artist William W. Lewis terms ‘affective agency’ (2017, p. 10). For example, a jump by the filmic subject

might make the participant *want* to twist or lean backwards, or perhaps *feel* that they need to lean their head accompanying the timing and rhythm of the onscreen action. Whether these embodied feelings realise themselves in a physical outcome, I would suggest, partially depends on how free the participant is in the space, both physically and from a social perspective; is there room to move and is anyone else watching the participant? These aspects are fundamental considerations which informed the design of the installation architectures. In addition to the spatial aspects of each work, as detailed in Chapter 1, it is also important to note that participants experience the works away from other audience members, often within a space sealed off from public view to reduce any inhibiting self-consciousness. Lewis's analysis of interactive and participatory performance identifies two kinds of agency at play: affective agency, as identified above, where perceived action stimulates a response in the participant at an instinctual and bodily level, and tangible agency, the 'ability to make change beyond the moment of personal response', which would include influencing the shapes, patterns and rhythms of an aesthetic encounter through an interactive duet (Lewis, 2017, p. 10). Lewis suggests that although affective agency might result in 'choices of position within the "immersive" environment' it does not alter the dramatic narrative or environment' which are altered through 'tangible agency'. Whilst this is true for the situations he describes: immersive theatre and digital games, it is somewhat different for *Remote Dancing*, *Orbital*, *Doing* and *ByPasser* which are neither narrative nor outcome-focused works. Applying Lewis' concepts to these works poses a different situation, principally due to the nature of their continuous engagement, where action and reaction are wrapped up in an ongoing exchange, as detailed earlier in this chapter. Through continuous engagement, the participant's reactions happen *with* the unfolding actions of the filmic subject, not after. In this way, the participant is constantly and simultaneously enacting both tangible agency and affective agency. This is different to the 'critical agency' Lewis describes as a 'matrixing [of] both the affective and the tangible' which I see more as a sequential interplay than concurrent interaction (Lewis, 2017, p. 10). Further, this is an ongoing process (as discussed in Chapter 1) where the participant is always engaged within the installations from the moment they enter whether they are still or moving. This form of engagement, I would suggest, offers a more deeply knitted experience

where the participants' actions contribute, at all times, to the ongoing and evolving duets within the installations.

So far, I have considered the participant's reactions in response to the movements of a separate other: where the filmic subject takes on the form of one or a number of distinct dancers. Although there is a clear visual difference between filmic subject and participant, they share a common movement dynamic through the interactive processes within each installation. I have shown that, through modulation, the speed, accelerations and pauses of the participant are directly reflected in those of the filmic subject. The participant witnesses two elements interwoven into the single image of the on-screen dancer(s). The first element is deeply familiar, reflecting dynamics of what they are doing in the moment. The second, the image of and shapes made by the dancer is far less so. It is as if the screen is mirroring some but not all aspects of their body. This is what I informally entitled during the research and development phase (2002-2004) as 'the huh? Factor', a response that came about when colleague and performer, Wendy Houston first began interacting with the initial version of *Remote Dancing*. It is the uncanny feeling that some form of live interaction is taking place, but the participant can't quite quantify exactly what it is. 'The huh? Factor' can be seen to arise from tension between the two elements, familiar, and unfamiliar, leading to a sense of disquiet or curiosity within the participant that has the potential to draw them further into the work. This feeling of uneasiness resonates closely with Reynolds and Reason description of the virtual reality work by artists, Ruth Gibson and Bruno Martelli (2010, pp. 260-261). Although Gibson and Martelli's work is set entirely in virtual space as opposed to an intermedial environment, Reynolds and Reason identify similar uneasiness and tensions, this time between the real and the virtual, where participants inhabit a virtual world through non-human digital bodies (Reason & Reynolds, 2010, p. 261). They suggest that whilst participants appear as digital entities, they also retain a human-bodied existence at odds with the digital representation. Such a situation leads to 'a reflexive attitude in which the visitor is aware of themselves as both embodied and virtual; self and other' (Reason & Reynolds, 2010, p. 261). This kind of reflexiveness is one shared by all of my collective body of works, where the participant is constantly reminded of their own actions through witnessing a displaced other body.

Reynolds and Reason note how crucial sensory feedback is, pointing out how this might lead ‘to heightened reflexive and sensory awareness’ (2010, p. 261). Rubidge and Schiller also highlight the importance of feedback within choreographic dwellings such as interactive installations, noting how ‘individual and environment are coupled, caught in a reciprocal interactive action cycle’ of ‘agency, affect and affordance’ (Rubidge & Schiller, 2014, p. 22). Through reactive engagement, and the previous forms of engagement, I have offered situations that show how not just visual, but also kinesthetic feedback can impact on and further enrich the participants agential role within the interactive works. These forms of feedback complete and support the participants engagement establishing the ongoing cyclical process previously referred to and illustrated though figure 26.

### ***Gravity Shift, an investigation into reactive engagement***

Much of the research leading up to *Remote Dancing* placed a focus on the digital technologies at play within the installation; however, it was only when the work had been fully presented to the public that it was possible to witness other subtle actions at play, in particular the reactions of the participant to the filmic subject. I was both surprised and intrigued to see how, what was portrayed on screen had a direct impact on the movements of the participant. In response I planned a new work, *Gravity Shift*, to explore these reactive engagements in greater detail, distinct from other engagements such as *Magnification*, *Investigation*, *Intimacy* and *Stillness*. *Gravity Shift*'s aim was to engage the participant solely through their embodied feelings, as described by Lewis' ‘affective agency’, in response to a filmic subject (2017, p. 10). It was intended that the installation avoid the complex feedback processes facilitated through the technology of *Remote Dancing*, *Orbital*, *Doing* and *ByPasser*, and focus purely on the felt responses to witnessing on-screen movement. Consequently, for *Gravity Shift*, I opted to present pre-recorded video played back at normal speed without interactive video scrubbing.

As described in the introduction, *Gravity Shift* depicts six life-size performers (the filmic subjects) appearing one after the other, projected onto a gallery wall. The bottom of the projection meets the bottom of the gallery wall in such a way as to extend the gallery floor through perspective (see figure



27) giving the impression that the filmic subject shares the same physical space as the participant. As with the other installations, the participant was free to stand and move around the gallery space. The performers in the video are depicted moving in an unstable manner, as if affected by a moving pull of an invisible force.

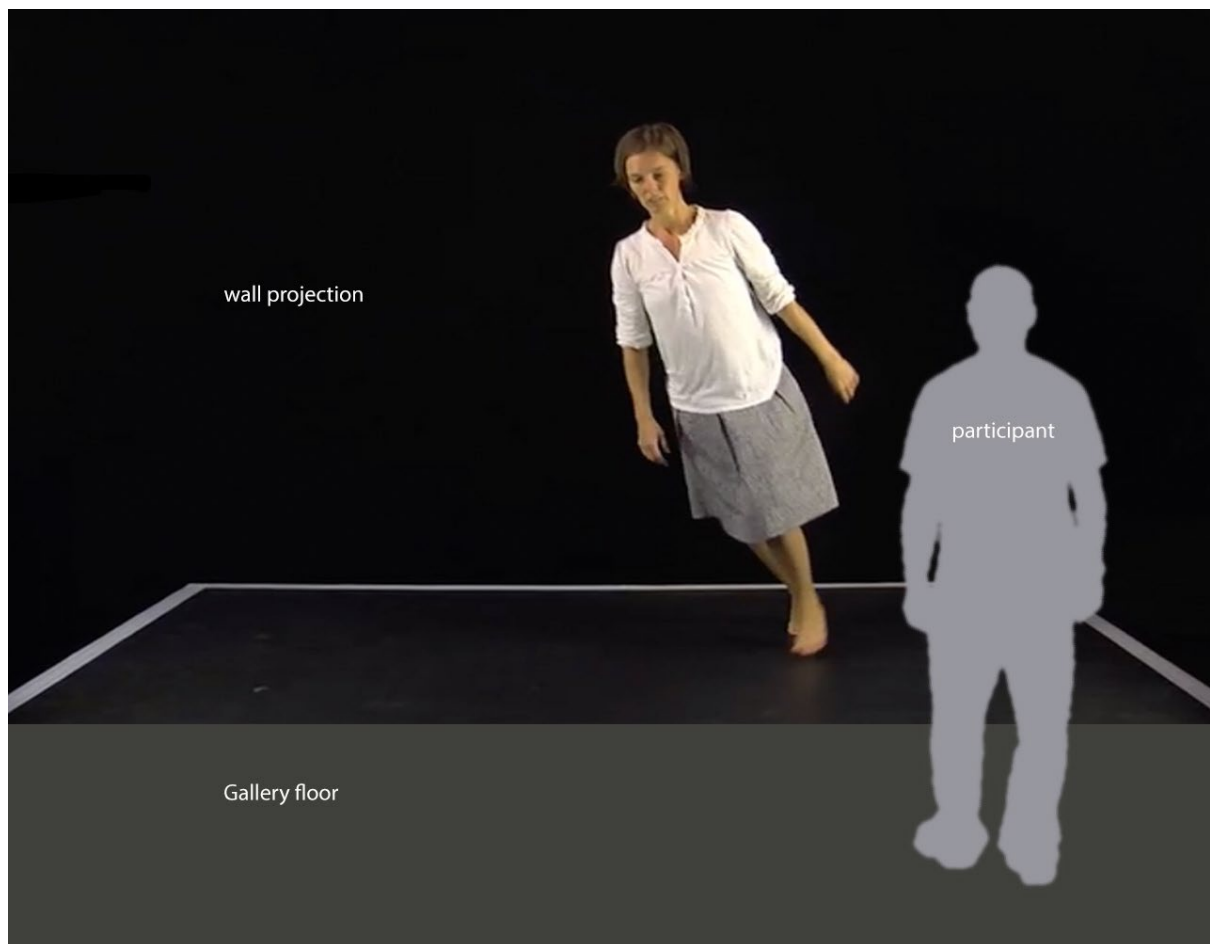


Figure 27. Illustration of *Gravity Shift* projection (black area) with participant in the gallery space (dark grey floor area)

For this work, I was curious to see how far such video content might stimulate or encourage a participant movement. In contrast to *Remote Dancing* and the other interactive works, I did not expect participants to actually move in physical reaction to the work, rather I was interested in creating an awareness of the potential for their actions, i.e., consciously noticing the behaviour of their body and

any impulse to react in response to the filmic subject. It was hoped that by drawing attention to their own bodily reactions the participant would feel greater complicity within a potential duet.

The actions of the filmic subject in *Gravity Shift*, rather than being affected by the participant's actions, as in *Remote Dancing*, were subject to 'a moving pull of gravity' (Sandiland, 2010) (how this effect is created will be elaborated upon in the following section). To the participant, each of the six performers appears to be at the mercy of an invisible force warping and distorting their movement as they begin to move or dance. My intention was to facilitate a process that might be likened to 'kinaesthetic empathy' (Reason & Reynolds, 2010, pp. 20-22), through which the participant could feel and embody the filmic subject's movement. I expected the experience of watching a performer move in a distorted manner to induce a sense of destabilisation within the participant's own body, similar to the experience within *Orbital* as described in Chapter 1, where the participant actively seeks to achieve some form of stability. In *Gravity Shift* this destabilisation comes about through the conflict between stable and unstable states. The participant's proprioceptive sense affirms a stable state; information from their 'muscle, joints, tendons and inner ear' (Reason & Reynolds, 2010, p. 18) experience a centred pull of gravity in accord with an upright and balanced position.<sup>17</sup> They are in a gallery, centred and standing on solid ground; however, the information from their visual sense, when witnessing the filmic subject, evokes an instability. This disjunction, as well as echoing the destabilising aspect of falling-catching detailed in Chapter 1, can be seen to act in a similar way to the tension between the familiar and unfamiliar elements in *Remote Dancing* (the Reactive Engagement in Chapter 2). A conflict or disjunction can, by its nature, draw attention to itself, and in this situation to the active role of the participant within the installation.

Schiller also remarks on to the way in which natural forces' such as gravity can feed 'into the processes that give rise to kinaesthetic experience' (Rubidge & Schiller, 2014, p. 19). When discussing choreographic dwellings and the exchanges between participant and environment, she draws attention to her concept of the *kinesfield* (2008) describing this as an 'extension of Laban's theory of the kinesphere (a virtual 'sphere' which covers only the reach space of the body)'. Schiller

notes how the kinesfield ‘incorporates not just the body’s relationship with the immediate environment, but also natural forces such as gravity (Schiller, 2008). For *Gravity Shift*, the kinesfield provides a viewpoint through which to embrace all dynamic and potential action within the work taking into account other forces at play on the body, including gravity.

This shift of attention, redirecting the participant’s focus back onto their own physical awareness, closely resonates with the Heideggerian concept of, ‘present-at-hand’, a view that could be seen as opposite to Heidegger’s notion of ‘ready-to-hand’ as noted earlier in this Chapter when discussing immediacy and continuous engagement (1962, p.102). Whilst ‘ready-to-hand’ reflects the way a participant interacting with *Remote Dancing* is undistracted by the technical apparatus of the installation, *Gravity Shift* subtly brings these technologies to their attention: they are ‘present-at-hand’. In other words, when watching the work, it is immediately apparent that there is something out of kilter with the filmic subject’s movement. It may seem that an intervention has taken place that, through its effects draws the participant’s attention slightly away from the projected image as a separate and detached space, and back onto their physical surroundings. To illustrate this change in mode, Heidegger offers the analogy of a broken tool: when a tool is fully functional our focus is predominantly on the task the tool is being used for, as opposed to the tool itself. However, if the tool suddenly breaks, our attention is shifted onto the tool’s physical immediacy and our engagement with the instrument (1962, p.102). In *Gravity Shift* the tool we are engaging through is the camera used to film the video clips. Ordinarily filmmaking does not draw significant attention to the camera. In contrast, the camera used to film *Gravity Shift* has been destabilised, ‘broken’ through its reorientation as will be described in the next section *Technique*.

When experiencing *Gravity Shift* the participant alternately experiences both ready-to-hand and present-at-hand states of engagement as their attention is first drawn into the film through viewing the filmic subject and then pushed back towards their own sense of being in relation to the image/installation. This constant oscillating from one state to the other offers an added perspective

from which to highlight the potential agency of the participant. This concept of a ‘broken tool’ is further elaborated in Chapter 3 when discussing *Doing* and *Orbital*.

### ***Technique***

There are numerous experiments both artistic and scientific, that introduce conflicts between proprioceptive and visual information in order to create physiological responses from the participant. Many achieve this by altering the environment the participant is placed in. Take for example, researcher psychologists David Lee and Eric Aronson’s experiments in the 70s (Goldstein, 2007, p. 159), and installation artist Carsten Höller’s *Swinging Corridors* (Höller, 2004 to date), both of which place their audiences within specially designed rooms assembled from temporary panelling. From the audience’s point of view these rooms appear rigid and fixed. However, they have been engineered in such a way as to allow the walls and ceiling to move independently of the floor. In Höller’s case the room is a corridor structure suspended by wires to keep it floating a few millimetres off the ground (see figure 28). As such the corridor’s shell is free to swing subtly back and forth in the air.

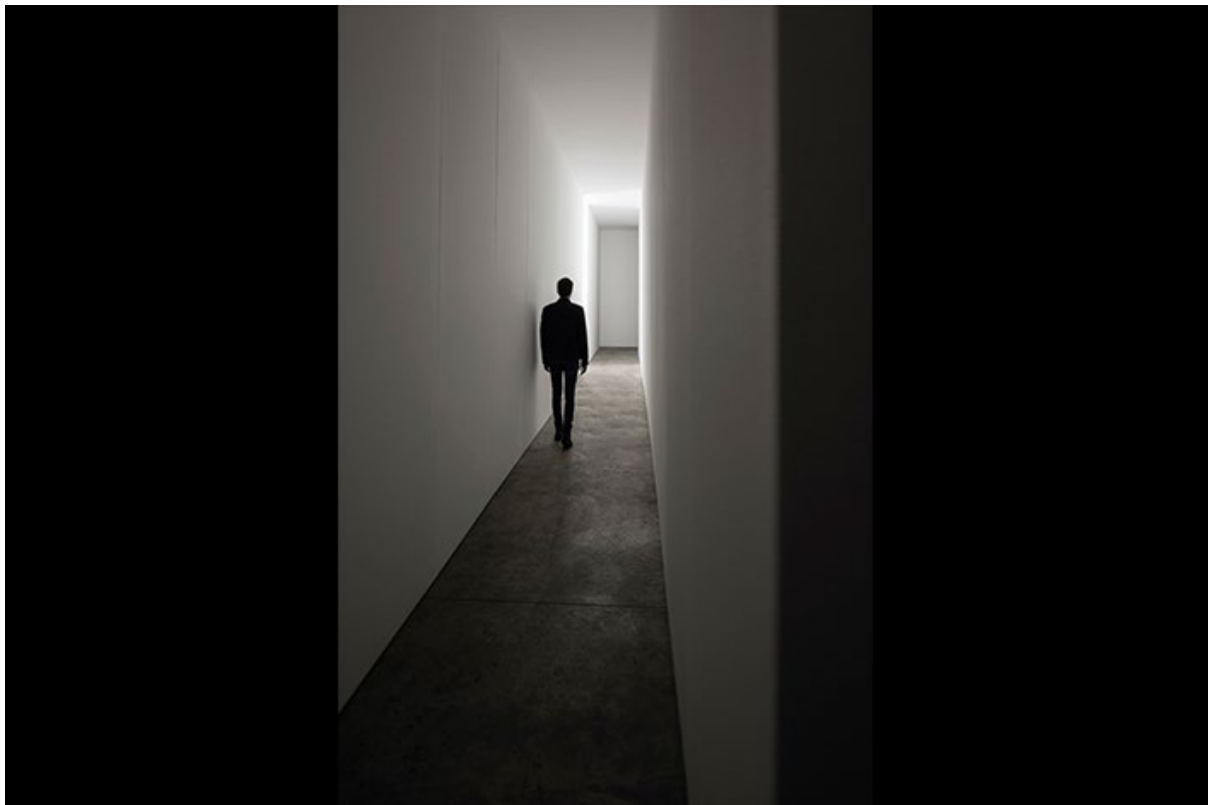


Figure 28. *Milan Swinging Corridor* by Carsten Höller (2016) part of a series of suspended corridors from 2004 onwards.

When entering Höller's corridor audiences experience 'an almost imperceptible shivering of the walls and the ceiling [which] influences their sense of balance and their proprioception' (Mosae , 2016). This subtle dislocation between visual and physical senses creates a disquieting feeling which often causes the body to move in reaction, or at least catch itself from moving, bringing attention to its complicity in the work. In a similar manner Lee and Aronson place their walled structure on wheeled bases allowing their room to slide easily over the floor. At opportune moments during their experiments assistants behind the walls would quickly push the structure slightly forwards or backwards. This movement has a dramatic effect on the participants (young children) and their stability within the space, which is evident through Lee's original documentation.

In contrast to Höller and, Lee and Aronson's architectural spaces, *Gravity Shift* depicts a human figure to affect the participant's proprioceptive senses. The aim of the work is not so much 'to interrogate the individual's ability to perceive the position of his or her own body in space' as with Höller's corridors (Mosae , 2016), more it was about using this perception to notice the agency that can arise through bodily engagement.

To create its gravity-altering effects, *Gravity Shift* drew on a cinematic technique first used in mainstream film by dancer Fred Astaire. In *Royal Wedding* (1951), Astaire plays a character who, throughout the film, behaves as expected until one point when he suddenly appears to defy gravity by starting to dance on the walls and ceiling of a living room where the particular scene takes place (see figure 29).



Figure 29. Fred Astaire dancing on the walls and ceiling of an apparently stable room in *Royal Wedding* (1951).

Film and media theorist, Adriano D'Aloia, notes that Astaire's movement acts 'to disorient the spectator's bodily orientation' subverting 'the physical laws that, until that moment, seemed to govern the movement of bodies internally in the film space; the viewer's natural perceptual habit is thus disturbed. Suddenly, the character does not obey the law of gravity that have governed the space in which he moved.' (2012, P168). This disturbance interjects a sense of tension for the viewer as things no longer abide by predictable rules established in the film's earlier sections.

To achieve this effect Astaire had the Hollywood production build a 'room set inside a revolving steel barrel and mounting the camera and operator to the floor so they would rotate along with the room' as described by film academic, Adriano D'Aloia (2012, p. 168). The key point that I want to clarify, is that although, like Höller's and Lee and Aronson's projects, *Royal Wedding* relies on a moving environment to create its effect, the film's viewer does not see the room moving. This is because the camera's vantage point also changes in accordance with the orientation of the room. Instead, the viewer experiences the room's movement indirectly through its effects on the performer.

*Gravity Shift*, draws on a similar technique to *Royal Wedding* but presents the resulting film in a gallery space, as opposed to cinema or television, bringing the filmic subject into the immediate physical space of the participant, life-size and without a segregating frame. By doing so the installation distances itself from the passive-viewer cinema experience, where it is accepted (and often expected) that any gravity-defying action might take place through special effects and ubiquitous CGI. By positioning the work in a gallery/installation context, the filmic subject can begin to establish a greater immediacy and, what visual culture academic, Nick Kaye calls ‘affective “presence”’ in relationship to the participant (2007, p. 210).

I Initially consulted Sam Wane, senior lecture in robotics at Staffordshire University, to design a movable environment within which we could create the film for *Gravity Shift*. Wane suggested, instead of the cumbersome and relatively uncontrollable barrel used in Astaire’s movie, that I work with a Motion Base robotic platform often used in contemporary film production. Formed from a geometric arrangement of motorised actuators the Motion Base presents a framework which can expand and contract in order to move a platform resting on top of its structure (see figure 30).



Figure 30. illustration of a motion base robotic platform courtesy of W.S.Harwin, Reading University.

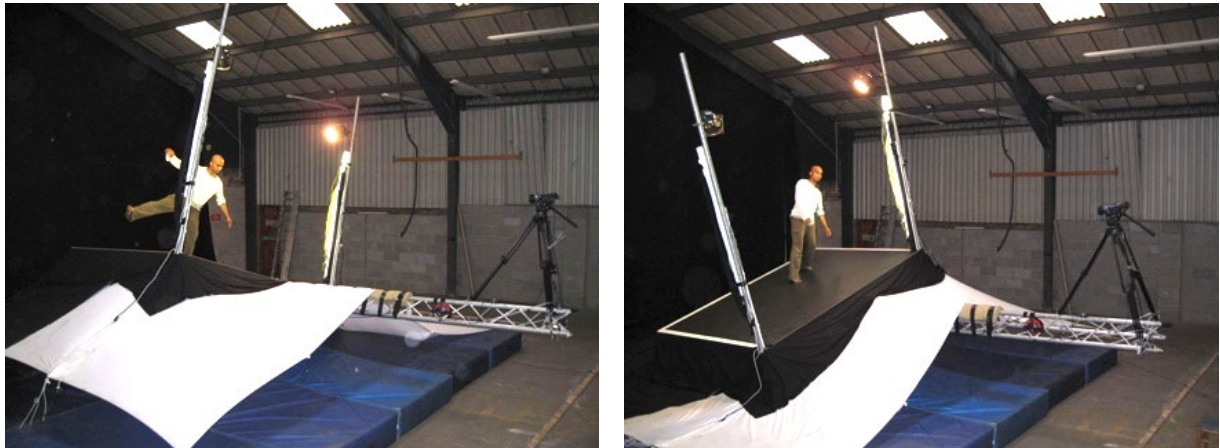
During the production I arranged for a small engineering team to attach the Motionbase to a specially constructed dance floor with camera rig. This arrangement offered far greater and subtler control than the room/drum scenario in *Royal Wedding* allowing six degrees of freedom, tilting at precise angles and changing to different positions far faster than a large steel barrel of the original Hollywood mechanism. Further information about the workings of *Gravity Shift* can be found in Appendix 2: Technical Details.

From the camera's perspective the background of *Gravity Shift* was completely black with no features to reveal position or orientation. In this scenario all camera shots presented a dance floor against a wall which appeared fixed and horizontal, even though in reality the floor could move profoundly on its axis. A visitor to the film production, during the making of *Gravity Shift*, might witness the dancers constantly shifting their position to remain upright on top of a platform whose motion tilts and turns beneath them (see figures 32 to 33); however, when watching the resulting film presented in the gallery, the participant witnesses the inverse: a static environment that gels with their surrounding space but which contains a performer whose movement shifts and tilts erratically as if their body is being pulled off-centre by an invisible force (as seen through the [Gravity Shift documentation](#)).



Figure 31. *Gravity Shift* research and development showing the Motion Base with stage platform construction.





Figures 32 to 33 (from left to right) images from *Gravity Shift* research and development showing moving stage and performer with camera.

As mentioned earlier, the feeling of conflicting sensations was intended to draw greater attention to the participant's inclination to act within the duet, acknowledging their presence as an active part of the relationship. This conflict, in itself, can be seen as a form of intermedial engagement within the installation: as Scott points out, presence can be, 'creatively constructed through intermedial engagements' (Scott & Barton, 2019, p. 74). Although visitors to the installation did not necessarily move in response to the projected imagery, most described a destabilising effect on their own bodies when watching the video. During the presentation visitors commented on how, when watching the performer move, they felt a sense of deep unease within their own body, affecting and disrupting their physical sense of stability within the gallery surroundings. Some comments also revealed both empathy and sympathy through a compulsion to try to help, what appeared to be, a dancer trapped at the mercy of an invisible force.

During the research and production of *Gravity Shift* I worked with six dancer/performers each with a different style of movement ranging from highly trained dance technicians to everyday pedestrian action. The trained dancers, particularly Saju Hari of Shobana Jeyasingh Dance Company, quickly mastered moving on the shifting floor and were able to present more virtuosic actions (see figure 34).



Figure 34. A still from the projected film of *Gravity Shift* featuring dancer, Saju Hari

However, this dexterity tended to create a less compelling video lacking a sense of tension: the masterful movements instilled a sense of confidence making the participant feel less concerned for the performer. To counter this issue, I reintroduced a feeling of unease, by increasing in scale the movements of the Motion Base making these more sudden and unpredictable in order to take the performer by surprise. Interestingly, the pedestrian performers (Stevens and Copland) who were not dance trained, presented a more immediate and transparent reading of the situation. I suggest that this could be due to several factors. Firstly, their simplicity of action such as walking and running, renders the performers' reactions to the shifting floor more obvious without the added layer of abstract movement. Secondly, it could be that, because of their technical training the dancers were not so affected by the moving floor and did not appear to be in such a destabilised position.

In conclusion, *Gravity Shift* develops the framework for reactive engagements by introducing a destabilising effect on the participant's physicality within the work. Although there is no technical apparatus for interaction, the installation highlights how the participant's reactions are an active part of the engagement even if these are never outwardly realised. The tension resulting out conflict

between proprioceptive and visual sense foregrounds these reactions in the participants mind adding another layer to ‘The huh? Factor’ I mentioned earlier under Reactive Engagement. Consequently, the participant’s attention is simultaneously drawn to both their own bodily reactions and the actions of the filmic subject, evoking a potential duet between the two.

## **8. Summary and Conclusion**

In this chapter I have shown how interactive video scrubbing can allow a participant to set up and develop spatial, as well as dynamic and temporal, relationships with the filmic subject within the duets of *Remote Dancing*, *Doing*, *Orbital* and *ByPasser*. The process of modulation supports these relationships allowing for a co-agential environment acknowledging and integrating movement from both participant and filmic subject, supporting agential action in a way that does not dilute either contribution. Agency is supported through participant investigation, can be both affective and tangible through ongoing exchange of action, and is present even when the participant is still or apparently inactive. Agency can also arise through subconscious and intimate motion within the installations. Further, *Gravity Shift* together with *Remote Dancing*, *Doing*, and *Orbital* evoke impulses from the participant, that might be likened to Lewis’s affective agency, that can be seen either to echo or respond to perceived action (2017, p. 10).

Developing these arguments about the particular ‘agencies’ that evolve out of these duets, Chapter 3 will go on to examine the filmic elements of *Orbital*, *Doing* and *ByPasser* placing attention on the *filmic background*. In doing so I will investigate how this accentuates the agential aesthetics and influences the participant’s engagement within these works.

## Chapter 3

### *Moving Background*

## 1. Introduction

This chapter analyses, in greater depth, the filmic elements within the installations through reference to the moving backgrounds of *Orbital*, *Doing* and *ByPasser*, and moving mechanism of *Weighting*, and further examines the notion of relational space introduced in Chapter 1.

Previously, I discussed the nature of the filmic subject as a central element of the projected video; I now shift attention to the filmic background (as in figure 35), expanding the idea of a duet by viewing this element as the participant's dancing partner.



Figure 35. Example of a moving background with no foreground subject.

I further analyse how moving in tandem with the filmic background might impact on the participant's involvement within the works, and how this could lead to greater agential engagement. My analysis develops the idea of destabilisation introduced in Chapter 1, by questioning the stability of the filmic background with respect to *Orbital*, *Doing* and *ByPasser* where all elements, background, foreground and participant, are in flux. In addition, I highlight how the moving monitors of *Weighting* also create a moving background producing a destabilised experience of the work, drawing greater attention to the constituent elements. To aid this discussion I return to Rubidge and Schiller's relational net to embrace the choreographic interrelationships and exchanges which take place within the works. Across the works I consider the problematics of film presentation and in response offer techniques to

unite action within and outside of the frame, bringing the agential actions of the participant further into significance.

Continuing my discussion on video scrubbing at the start of chapter 2, I offer approaches through which to create moving backgrounds within interactive video installation. These approaches entail scrubbing film that has been shot using moving camera techniques such as tracking and jib, techniques informed through filmmaking, specifically through the work of filmmaker, Tony Hill (*Holding the Viewer*, 1993), (*Downside Up*, 1984).

To introduce a different analytical perspective of *Orbital*, *Doing* and *ByPasser*, I draw on Sobchack's phenomenological examination of camera movement, highlighting how the participant's actions are reflected through the camera movement of the filmic content, reinforcing their involvement within the works.

## **2. Relational Space**

In 2011, shortly after finishing work on *Orbital*, I was commissioned by the Barbican Centre, London, in conjunction with the Merce Cunningham Dance Company, to create an installation for the for Cunningham's 'Farewell Legacy Tour' after the choreographer passed away in 2009. With the thinking behind *Orbital* still fresh in my mind I began to revisit some of Cunningham's ideas and concepts for inspiration towards the new work. Whilst doing so, I came across a BBC interview with arts journalist, John Tusa where Cunningham describes his seminal stage performance *Points in Space* (BBC, 2003). Listening to this discussion, I was immediately struck by how closely the description of *Points in Space* resonated with the experience of *Orbital*. In the interview, Cunningham challenges the hierarchical notion of the front-on view as a choreographic necessity in the way that, to date, almost all movement material for theatrically presented dance was considered with the audiences placing in mind, presenting to and for their point of view. Cunningham explains:

But it was the statement of Einstein's which I read at that time, where he said there are no fixed points in space. And I, it was like a flash of lightning, felt well that's marvellous for the stage. Instead of thinking it's front and centre, a, a point, to allow any point, very Buddhist, any point in the space to be as important as any other. It opened the way one could think. How, not just that you face the way that you might think is unfamiliar, but how do you get to that?

Transcript of John Tusa interview with Merce Cunningham (BBC, 2003)

Cunningham's revelation drew attention to what I felt to be the relational aspects of his choreography, particularly considering his reference to Einstein. As with Rubidge and Schiller's relational net, I saw the movement within *Points in Space* as both "reciprocal and differential" (Rubidge & Schiller, 2014, pp. 2-3), each movement being of equal significance, defined in relation to each other rather than any fixed frame of reference. Although it could be said that the piece was performed on a rectilinear stage and, in a way, still asserted a background reference, it was the overarching principle of questioning fixed reference points that for me echoed the choreographic relationships I was exploring through *Orbital*. I subsequently decided to re-work *Orbital* keeping its structural form but reworking the filmic content: now re-shot backstage in the Barbican building. When making the new commissioned work I sought to challenge further Cunningham's idea of 'no fixed points' by including both the audience (participant) and the filmic background as changeable and dynamic parts of the choreographic composition. This reworked version, entitled *Points of View*, reflected and developed on the themes of the original *Points in Space*.

### **3. A Relational Background**

In Chapter 2, I briefly introduced the idea of a filmic background not as an absolute and unchangeable setting against which action takes place, but as another moving element within the relational net of *Orbital*, *Doing* or *ByPasser*. I noted that when scrubbing video footage shot with a moving camera, not only does the action cause the subject to move but it also affects the perceived motion of the background, an effect illustrated through scrubbing a clip from *ByPasser*. When moving within, or

past *Orbital*, *Doing* and *ByPasser* the projected background shifts in ways contrary to everyday experience. Firstly, the background is not, as one might expect it to be, static, but moves in accordance with the participant's speed and dynamic through the direct and immediate process of modulation, as was previously described, with respect to the filmic subject, in Chapter 2. Secondly the background asserts an independent movement trajectory dictated by the camera movement when the film was originally shoot. Both these factors can be seen to draw greater attention to the background and its significance within the relational net through unexpected behaviours. Subsequently, rather than maintaining a fixed and unvarying reference point the background becomes a free-floating (but interrelated) element that can be seen to have greater agential possibility within the installations. This change in role, can, metaphorically, act to pull the carpet from under the participant's feet by detabilising what the participant subconsciously relies on to keep their physical position. In a similar manner to Höller's *Swinging Corridors* (2004 to date), the background now activates and highlights the participants physical involvement within the installations through its own motion. To explore the idea of destabilisation further I now look to film theory and the writing of film theorist Vivian Sobchack.

#### **4. Intentionality of the Camera**

Vivian Sobchack brings another perspective to the moving background, this time from a cinematic point of view. Sobchack, who uses concepts from phenomenology to re-examine film practice, also contests the assumption of an absolute and unvarying background. In the following, she notes how camera motion on a film set is always described with respect to a static and unchanging environment:

camera movement in the cinema has been objectively and analytically conceived ... time and space are regarded as the ground against which locomotion can be measured, objectified and categorized... Thus, there is something unsatisfying and inappropriate about such descriptions of camera movement in the discipline's basic works... they also seem to have nothing to do with our experience of camera movement on the screen as meaningful.

(1982, p. 319)



In the film industry, a description such as camera tracks left describes movement against a static background, not in relation to the any moving element: the filmic subject for example. Consider instead the phrase: the camera chases after a performer, that places emphasis on the relational dynamic between both performer and camera. From this perspective, both camera and performer have an equal agential action within the composition, echoing the following-chasing mode of engagement I describe in Chapter 1. Although Sobchack is referencing camera motion within film production rather than the perception of a finished film, both camera motion and the experience of moving backgrounds are, as I have previously noted, intimately linked as the motion of a cinematic background directly correlates to how the camera was moved during shooting.

Building on this relational understanding of camera motion Sobchack also introduces two further phenomenological concepts centred on camera movement, ‘embodiment’ and ‘intentionality’ (Sobchack, 1982, p. 321). She suggests that ‘the mobility of the camera is prereflectively understood as always meaningfully-directed, [and] as intentional’ noting how ‘camera movement echoes the essential motility of our own consciousness as it is embodied in the world’ (Sobchack, 1982, p. 317). In other words what the participant experiences when watching a film is a form of embodiment or alignment with the camera’s physicality; they are placed at the ‘locus’ of the camera, experiencing the surrounding environment from its perspective (Sobchack, 1982, p. 327). Further to this, when witnessing film with a moving background, the participant also feels and empathises with the motion of the camera’s *body*, as if it were their own body moving within the filmic environment. To take this one step further, when considering action within the interactive environment of *Doing* or *Orbital*, participant motion is even more tightly bound to that of the camera through the modulating effects of video scrubbing, as described in Chapter 2. In this way the camera is perceived to have a double intentionality: its own and the participant’s, closely echoing the perception of the filmic subject’s intentionality within *Remote Dancing*.

Embodiment and intentionality, can be seen as further ways that lead towards a tighter knitting together of the relational elements which make up *Doing* and *Orbital*, drawing together the actions which take place within the installations in a direct and continuous manner. In this way, both the agential contribution of the participant together with a self-awareness of this contribution are brought to the surface, clarifying and making explicit their active contribution to the installations.

Sobchack's cinematic point of view also presents a sense of tension or destabilisation, accentuated through the installations' provision of space (in contrast to the restrictive seating of a conventional cinematic setting).<sup>18</sup> This heightening occurs because the participant's *locus*, their location in space informed by the camera's position, jars with their *focus*: the awareness of their placing within the physical installation (Sobchack, 1992, p. 179). Sobchack refers to this conflict as an 'echo-focus' and gives the example of a pair of spectacles, which at times reminds us of their presence through their weight and physicality on the bridge of our nose, but in doing moves our attention away from what we see through their lenses (Sobchack, 1992, p. 179). For *Doing* this destabilisation is most obvious when the participant travels in one direction through the physical space (their focus) only to experience the floor projection that they are walking on is moving in a different direction. (their locus within the film). As with *Gravity Shift* and *Orbital*, destabilisation causes the participant to take note of their bodily actions rather than forgetting about their physical presence within the installation. The process shifts focus to all elements within the relational net and in doing so emphasises and embraces the participant as an active and affective contributor to the agency arising out of each installation.

In contrast to *Doing*, *Orbital* presents its filmic background in a slightly different way. Rather than portraying a space that immerses the viewer, the background of *Orbital* tends more towards a discrete three-dimensional ball on which the performers (filmic subjects) dance, and around which the participant travels. Being filmed on through a fisheye lens, the film's background is warped and distorted to such an extent as to shift associations away from continuous flat background, rendering it more a rolling sphere, as illustrated in figure 36.

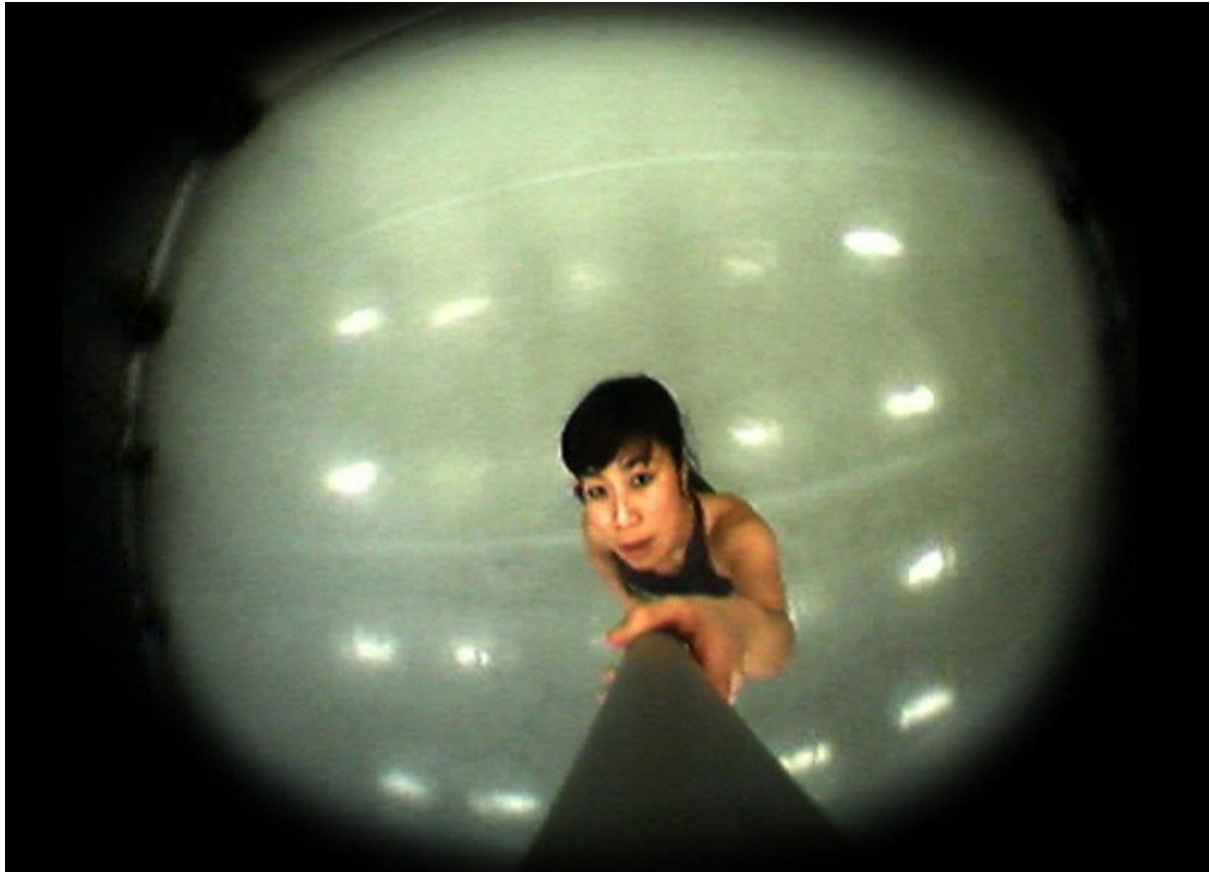


Figure 36. A still from the projected film of *Orbital* featuring dancer, Aya Kobayashi

Although the background of *Orbital* is different in form to that of *Doing*, it is also a component within the installation's relational net. As such, this background again creates a significant interplay with the participant, with a similar sense of destabilisation, as is evidenced by the movement of participants as they move around the image trying to catch up with an image that constantly escapes any sense of stability or alignment. The intentionality of camera movement experienced whilst engaging with *Orbital* is quicker and more dynamic in its actions than *Doing*, this gives the background a lighter feel which appears to have greater sensitivity to the participant's actions. The fact that the filmic subject is also camera operator (and in shot) adds to the intentionality of the video. As with *Remote Dancing*, eye contact is used to acknowledge the participant, but in this situation, it also conveys and reinforces the sense of intentionality.

The camera mechanism used to create *Orbital* was similar to what is now commonly known as a selfie stick, though the installation was constructed five years before the selfie stick's mainstream popularity. The rationale for using this device was twofold. Firstly, to democratise the role of the camera, giving the performers agential influence over the device that captured their actions; and secondly to further destabilise the camera motion by giving it six degrees of freedom as opposed to four. To elaborate on the latter point: the moving camera for *Doing* employed a jib (to raise and lower the camera) in combination with a dolly (to wheel the camera around the floor). Using both mechanisms allow for four degrees of freedom in space but keep the horizon line fixed through restriction of tilt and roll (see figure 37).

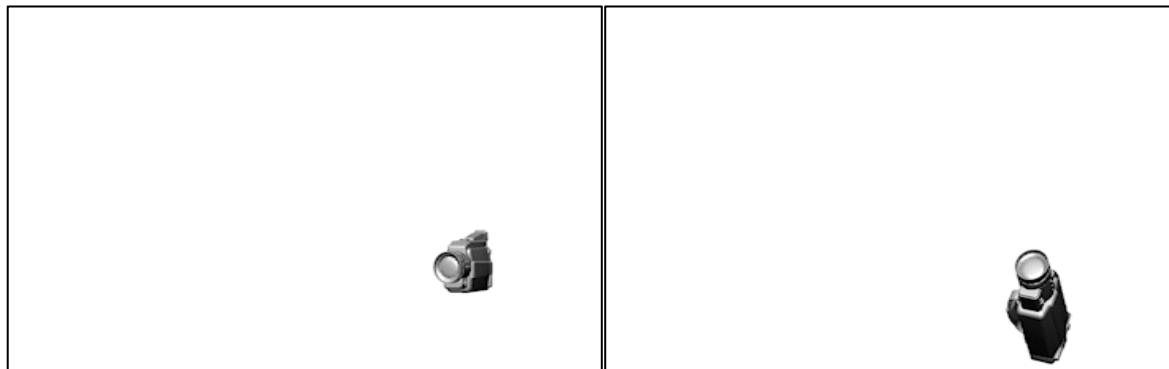


Figure 37. Animated images illustrating camera motion used to film *Doing* using 4 degrees of freedom (on left) and *Orbital* using 6 degrees of freedom (on right)

In general filmmaking practice tends to avoid camera tilt and roll as a 'tilted perspective' can quite quickly 'make viewers feel uneasy' (Nashville Film Institute, 2021). Altering the angle of shot along the camera's horizontal axis, can convey 'signals that something is wrong, unsettled, or disorientating' (Nashville Film Institute, 2021). However, for *Orbital*, these qualities are seen as methods to achieve further destabilisation through which the participant's role can be greater acknowledged within the work.

The use of moving camera rigs in the production of *Orbital*, *Doing* and *Gravity Shift* resonates closely with filmmaker, Tony Hill's work in the 1980s and 1990s which, according to film academic, Nicky

Hamlyn, uses 'elaborate camera rigs to challenge the viewer's sense of orientation, often creating 'a reversal of the relations of stasis and motion which we take for granted' (2003, p. 125). *Orbital* in particular offers a development of Hill's short films Holding the Viewer (1993) and Downside Up (1984) through realization within an interactive setting.

Returning to the camera's intentionality, it can be seen that, through the unusual and unexpected camera movement offered by the mechanisms used in *Orbital*, *Doing* and *Gravity Shift*, the actions of the filmic background take on a more significant role within each work. Each installation displays a clear intentionality through the decisive actions taken by the camera in its rolling and twisting, which weaves itself within the choreography for *Doing* and *Orbital*.

Further information on the technical apparatus of *Doing* and *Orbital* can be found in Appendix 2: Technical Details.

## **5. The Appearance of the Broken Tool**

The play between Heidegger's ready-to-hand and present-at-hand, as detailed in Chapter 2 when discussing *Gravity Shift*, becomes even more marked when considering *Doing* and *Orbital*. Whilst *Gravity Shift* placed its focus on how the participant might notice the potential for interaction, the installations *Doing* and *Orbital* draw attention to the process of ongoing interaction, employing tools to create a two-way affective connection between participant and filmic subject. As with *Gravity Shift*, when these tools start to become unpredictable or misbehave (one could say they become 'broken'), their physicality and immediacy start to enter the participant's awareness. In contrast to *Gravity Shift* the tools are interactive constantly responding in unexpected ways to the participants motions: as noted earlier, the participant in *Doing* moves one way and the floor responds by moving in another direction, they then adjust their movement accordingly but the floor this time goes in entirely different direction. In this situation the participant is constantly being made aware of the tool or mechanism supporting the work through their own interaction, and consequently, their own actions are constantly reflected back through a continuous involvement. What is important here is not that the

broken tool might reduce the efficacy of interaction, it does not: the participant's movement can still create significant reaction. It is more that the reaction is something different from what is expected. In this way the tool and accompanying physical effort of the participant are brought further into focus creating a further sense of destabilisation.

## 6. ByPasser and Unintentional Agency

*ByPasser* represents a more minimalist approach to camera movement, this time using a rig restricted to just one degree of freedom in the form of a sideways tracking shot (illustrated in figure 38).

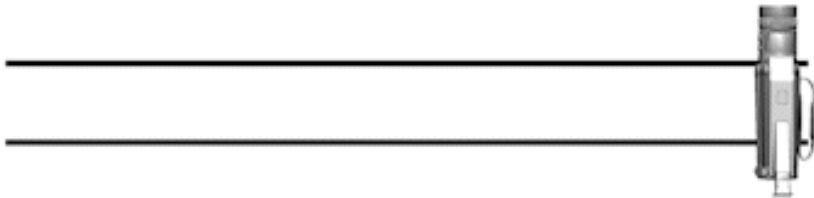


Figure 38. Action of camera when filming tracking shot (viewed from above)

Whilst *Remote Dancing* examined movement taking place towards and away from the projection screen, *ByPasser* investigates transverse motion of the participant as they travel across the screen. Correspondingly, the installation sets this participant motion against a background which also exhibits a similar transverse motion (see figure 39).



Figure 39. *ByPasser* presented by Stone Squid Gallery, Hastings (2010)

*ByPasser* has many similarities to *Orbital* and *ByPasser* in its form and technical realisation; however, rather than being shown in a gallery or theatre space, the work was presented in the public setting of a shop-front window on a high street or promenade. This interventionist approach was adopted through a number of public-facing works I created at the time, designed to engage everyday pedestrians who may not necessarily venture into dedicated arts spaces; the works included *Everything Looks Beautiful in Slow Motion* (Sandiland, 2010) and *Trip Hazard* (Sandiland, 2013). Note that I will refer to the participants as *pedestrians* to highlight the site-specific context of these works in my discussion. These public-facing installations responded to the actions of the pedestrians in front of and around the window projection. Sometimes the pedestrians noticed the reactions and at other times were not aware of their effect on the projections in the windows.

For *ByPasser*, a hidden camera in the window monitored the transverse motion of each passing pedestrian. The information from the camera was fed into the same interactive technology used in *Remote Dancing*, scrubbing a video clip in the same direction and speed as the pedestrian's

movement. In this situation the background image *follows* the pedestrians as they travel in front of the window, as illustrated in figure 40.

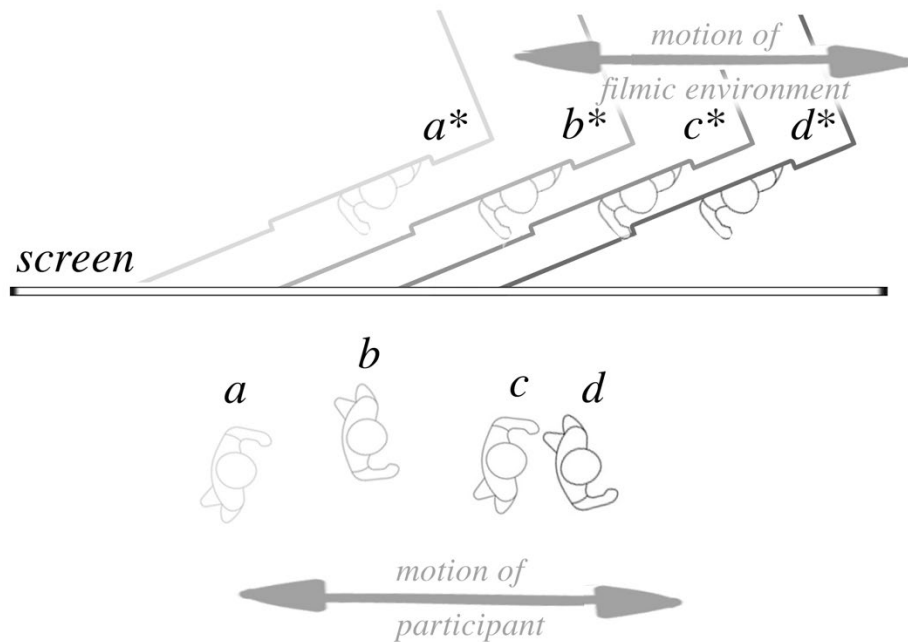


Figure 40. Spatial relationships within *ByPasser* (participant moves a through to d, filmic background moves a\* through to d\*).

The aim of this work was to subvert expectations of how backgrounds behave: ordinarily one moves against a static background, but in the case of *ByPasser*, the relationship is inverted, as the background now takes an active role in the engagement. In this way, a direct agential engagement is established that both reflects and amplifies the movement of the pedestrians passing in front of the window. *ByPasser*, and to some degree *Orbital* and *Doing*, were inspired by phenomenologist, Maurice Merleau-Ponty's observation of the relative movement of a ship against the shoreline. In his description, Merleau-Ponty notes that 'it is the coast which slips by if we keep our eyes fixed on the rail, and the boat which glides along if we look at the coast' (1962, p. 324). In doing so he draws attention to two aspects of motion: first that movement is a relational quality depending on what perspective it is viewed from; and secondly that the background is not a universal and unchanging fixed point of reference. Whilst the background in *Orbital* and *Doing* formed part of the extended



duet between participant and filmic subject, for *ByPasser* it *replaces* the filmic subject altogether. The situation presented through *ByPasser* further challenges the notion of what constitutes a duet by placing the participant in direct relationship to the background, that now becomes a dancing partner itself, entering into the agential impact of the work.

Earlier I mentioned that often pedestrians were not necessarily aware of the reaction taking place as they walked past the window. Even when this is the case, it is important to note that their actions still have an agential impact on the installation. As I mentioned in Chapter 2, Rubidge and Schiller suggest that agency can be ‘intentional or even seemingly *unintentional*’ (2014, p. 22, my emphasis), in this respect, all pedestrian engagement and encounter with *ByPasser* can be seen to enact agential effect. Moreover, due to the installation being placed in a busy outdoor environment, other members of the public who do not directly interact with the work are also brought into the engagement as potential witness to the interactions. This secondary audience who understands what the installation is doing, often, tended to congregate and watch from afar as further unsuspecting pedestrians either intentionally or unintentionally engaged with the work.

## **7. A Moving Background in Physical Space**

Having examined how the perceived agency of a moving background might be experienced through *Orbital*, *Doing* and *ByPasser*, I now turn to *Weighting*. In discussing this installation I will focus on two aspects: its use of a physical mechanism to move both filmic backgrounds and content within the immediate space of the participant, and the potential agency created through stillness, as first introduced with respect to Giddens’s ‘still-ing’, in chapter 1 (Giddens, 2019, p. 214). To recap, *Weighting* is a kinetic work with two monitors attached to each end of a three-metre horizontal beam which tilts in accordance with the actions on each screen (illustrated in figure 41). The screens portray five performers who are, for most of the time, standing and weighting. Occasionally one performer moves out of one screen to enter the other, causing the screens to rise or fall as if the installation were a set of weighing scales.

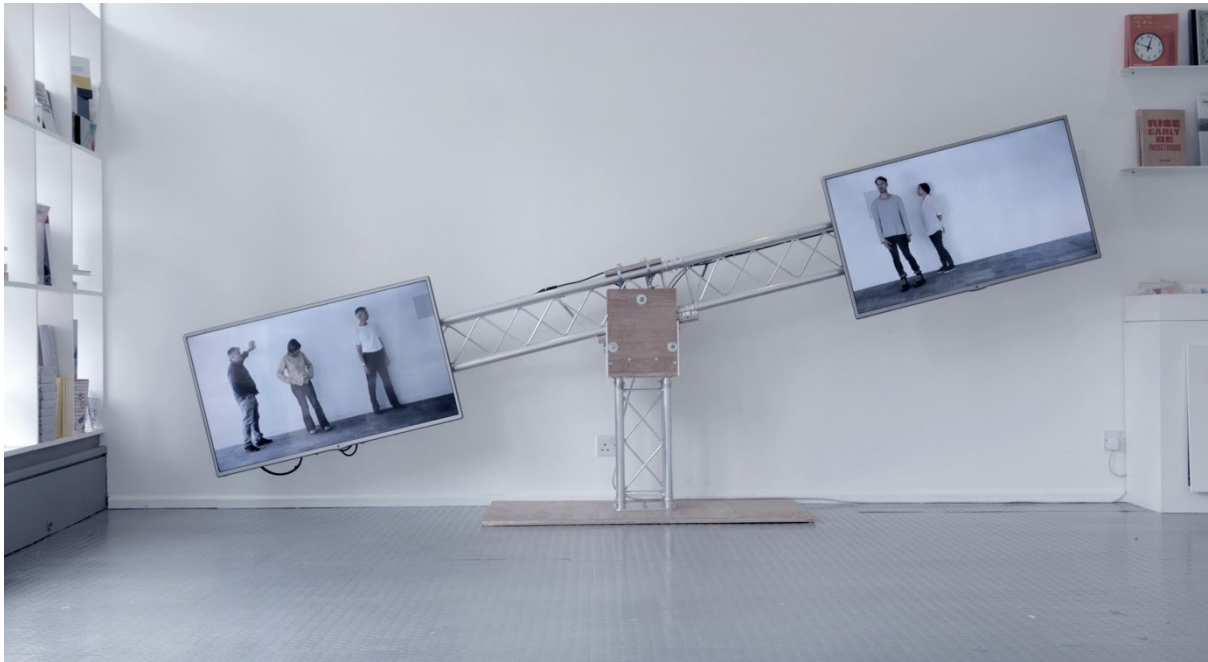


Figure 41. *Weighting* (2015) at Milton Keynes Gallery

I suggest that the kinetic structure of *Weighting* conveys a similar sense of intentionality to that of the camera in *Orbital*, *Doing* and *ByPasser*. The movement of the monitors (and filmic content) of *Weighting* is much the same as that of the backgrounds in *Orbital*, *Doing* and *ByPasser*. *Weighting's* screens, like the moving backgrounds, enact their own pre-recorded sequence in synchronisation with the actions of the pre-recorded filmic subjects. In contrast, the monitors in *Weighting* are consciously present in the shared space of the participant, and draw greater attention to themselves through their physical movement. In a similar manner to many minimalist installations of the 60s, such as artist Robert Morris' (*untitled*) *L-Beams* (1965) the installation's presence 'throws our attention back onto the process of perceiving' the work, in a way that makes us take note of 'the size and weight of our body' as we move around the work (Bishop, 2005, p. 53). In addition, because *Weighting* is kinetic, the work also draws attention to the actions of our body. A similar effect can also be seen in Schiller's *Trajets* where the long fabric screens which make up the work twist and turn in a way more akin to accompanying dancers than inanimate projection surfaces. In both installations the frames' movements become woven into the composition as a whole reflecting, engaging the participant relationally within the work. However, *Trajets* (and the other collective body of works), are presented

in dark theatrical environments allowing little illumination of the participant. Too much ambient lighting would spill onto the projection surfaces washing out their images. To counter this *Weighting* employs bright LCD monitors and does not rely on projection or blackout, in this way it remains visible under harsh lighting conditions. The work is thus able to be presented in a fully daylight gallery where the participant is more visually aware of their presence, placement and actions within the shared space.

Whilst *Weighting* is a kinetic work, for most of the time the piece appears as relatively inactive: the filmic subjects are waiting, Beckett-like, for something unannounced to occur, and the ‘scales’ remain motionless. In this respect, I return to my discussion in chapter 1 on dwelling and ‘still-ing’ or the ‘slowing to notice and attend to’ (Giddens, 2019, p. 214). There is an unspoken mystery to *Weighting*, the fact that the installation is physically imposing and constructed of functional mechanics seems to suggest a purpose of some kind, yet the filmic subjects are standing almost motionless as if waiting in a bus queue with an intention that at times borders on frustration. Like *Gravity Shift*, the participant, is implicated in the relationship, as along with the filmic subjects, they share the same space-time, waiting for something to happen. Giddens describes dwelling as ‘a delicate balance’, a phrase that coincidentally encapsulates the appearance of *Weighting* in both form and action, she also notes how this mode of being is a kind of ‘staying-with whilst recognising that change will inevitably take place’ (Giddens, 2019, p. 214). Indeed, in my experience of watching participants engage with *Weighting*, I have noticed a strong compulsion for people to dwell and move around the work for a significant period of time. The experience of time when watching *Weighting* places an emphasis on both ‘what has been’, through the position of the scales and distribution of on-screen bodies, ‘and the potentiality of what [is to come]’ that allows us to “‘read ourselves” into the work’ (Giddens, 2019, p. 222, citing Midgelow, 2007, P124). This noticing of transitory aspects again echoes back to the falling-catching engagement highlighted in Chapter 1 that, through destabilisation, constantly seeks to highlight participant’s physicality in relation to the work.

Further information on the electro-mechanical construction of *Weighting* can be found in Appendix 2: Technical Details.

## 8. Summary and Conclusion

I have shown how the moving backgrounds in *Orbital*, *Doing* and *ByPasser* can further challenge the notion of an absolute and unchanging environment. By detabilising fixed points of reference, the installations foreground their relational qualities, highlighting participant movement and emphasising agential impact within the works. This emphasis has a double impact as participants witness their actions both *through* the modulated movement of the background as well as their own physical awareness. By assuming different modes of being, the moving background can either dominate the participant's field of view or act as a moving body in space, both introducing a sense of destabilisation through their use of moving camera.

Film theory introduces another form of tension within the installations arising through the intentionality of the camera, which again heightens participant awareness of their agential actions. *Weighting* also contributes a sense of intentionality, not through camera movement but through the motion of video monitors through space, offering the potential for duet where moving, placing and dwelling in and around the work form part of an agential engagement.

In contrast to *Weighting*, *Doing* and *Orbital*, the seemingly unintentional movement enacted by the participant in *ByPasser*, as witnessed by a third-party audience, can also be present agential action within a work.

# Conclusion

There have been many societal changes since I first presented the six works between 2004 and 2015, most recently and notably the sharp increase in global online presence associated with the advent of COVID (Offcom, 2022). The proportion of our everyday engagement with others seems to be continually moving away from shared physical space, and, even here in February 2022 as government regulations appear to ease, there does not seem to be any sign of a reversal in this trend (DataReportal, 2022). Right now, I sit at my desk whilst, in other rooms of the house my teenage children, with their focus located deep within the virtual space of tablet or screen, sit nearly motionless oblivious to the immediate space around them. As with Sobchack's phenomenological perspective I believe that our bodies, as part of our minds, are affected by, affect, and are knitted into the technologies that surround us; but in today's digital society of screen-based communication and social media I am concerned at how our bodies seem to have been casually left behind. In my installations I have sought to question such disengagement proposing that, in order to activate our bodies in purposeful, fulfilling and agential ways, we require a clear provision of physical space and considered facilitation.

This re-evaluation of the body brings to mind the criticisms performance artist, Stelarc, whose practice examines the meeting point of the body and technology, received from the dance community at the beginning of the 2000's. During that time, I was party to conversations with practitioner/academics including Sarah Rubidge and Claudia Kappenberg who, strongly opposed to Stelarc's views, highlighting how little we still didn't (and don't) understand about human bodily experience and the potential it has to offer. At the time, Stelarc's overriding assertion, typed repetitively across his homepage at the time, focused on how he believed 'the body [to be] obsolete' and, by moving beyond it through technological innovation, we would 'no longer [be] subject to the limits of human life' (Michigan News, 2000)<sup>19</sup>.

In respect to the agential engagements identified in this writing, it is revealing how focused they are on the physicality of the body per se irrespective of digital mechanisms. Even though the installations overlap with digital and filmic practice (as set out earlier in figure 9) and draw on technical processes such as modulation, the relationship to the body remains of primary concern, be it captured on film or

in physical actuality. The choreographic engagement-couplings I proposed in Chapter 1 could equally be used as movement directions between two people in a physical improvisation class, setting up a relationship that supports an ongoing process. Even the engagements set out in Chapter 2, with the exception of perhaps temporal magnification, which is specifically related to the properties of filmic media, could equally be seen as directions for either duet or even solo movement. Further, when filmic representations of the body are less present, as in Chapter 3, the physical immediacy of the participant takes on greater significance, emphasised through their relationship to surrounding (and dynamic) backgrounds.

At times it has been helpful to view the engagements within interactive video installation as bodily duets, to avoid any disconnected or compartmentalised role each component, participant or filmic content, has, recognising that, within the term duet, one can see all components as essential and inseparable aspects of a wholeness. From this point of view, we can begin to see in one go, the totality of influences and interrelations that lead to the creation of agency within each work. Further to this, ‘a duet’ reflects not just a ‘thing’, identifiable as a form in space, but also a process evolving over time. This process might, for example describe two bodies *approaching* one another entering Hall’s intimate space. Equally it could reflect the *potential for further agency* if the two bodies are paused having arrived at a state of still-ing.

Such body-focused methodologies can be of use to the digital design student, thinking through the way in which the audience will ‘duet’ with a work. Duetting, in the way I have suggested in this writing, takes the form of whole-body interaction. This is an important factor when choosing an appropriate interface to base a work around: will the installation respond to the participant’s whole-body movement, or is it limited to just hand gesture? Default interfaces for computer interaction include keyboard and mouse that register small hand motions. Although, at the year of writing, there seems to be a growing interest in more varied gesture recognition through devices such as Leap Motion’s UltraLeap most computer interfaces still assume a relationship where the participant sits or stands with limited movement, in front of a monitor (Leap Motion, 2021). These kinds of interfaces

respond rather than progress a participant's physical relationship with the screen. As creative practitioners we can avoid adhering to such convention by choosing interfaces that allow participants to move more freely and in a more agential manner encouraging movement that expands into a greater surrounding space. In *Remote Dancing*, I employed ultrasonic distance sensors, the technology of the time, but there are many recent devices that offer richer and more detailed information about the participant spatial placing. Laser depth sensing for example provides accurate three-dimensional detection of participant location. This technology was popularised through home gaming stations such as the X-Box Kinect, and is now a standard feature of many smartphones and immediately accessible for artistic design through apps such as Zig Sim (Zig Sim, 2019).

For the choreography student, an understanding of how duets can extend across physical and filmic space can offer new opportunities for dance practice. Filmic space does not need to be locked away from the participant, demarked by a rectangular border. By changing a film's shape, aspect ratio and orientation, the filmic space can become part of the immediate locality offering further potential movement relationships. Unifying projection with architectural form, as with the upright 'portrait' orientation of *Remote Dancing*'s corridor, can extend an installation's choreographic space, particularly if visual perspective is used to advantage. Horizontal projection surfaces can become both containers of filmic material and physical objects in their own right that affect and guide participant movement through space, as can be seen in the installation, *Orbital*.

Aside from focusing on the interface and technical interactivity of installation design, it is also helpful to think of interactive video installations as spatial facilitators that acknowledge and support the agential potential inherent to the body in its movement through space. From this perspective a work can draw from the richness of pre-existing body-focused relationships, such as the engagement couplings further to those discussed in Chapter 1 (chasing-following or falling-catching, for example) to inform new strategies for agential interaction. These pre-existing relationships also offer intuitive ways to engage at an immediate and body-focused level without having to read lengthy instructions or learn unfamiliar techniques prior to experiencing the work.



It can also be beneficial for digital design students and practitioners to view interactivity not as a series of discrete actions and reactions but instead consider interaction as an ongoing process weaving together motion of both participant and film. To facilitate such an approach, I suggest that rather thinking of reactions within interactive installations as resulting and detached end points, as in, ‘I do this and something happens’, that video content be considered, filmed and selected as material to be modulated through participant action in a continuous and sustaining manner. Today’s technological platforms offer many new attributes for modulation compared to the scrubbing the digital video in the 2000s. Working with generative algorithms and machine learning tools such as [InteractML](#) for example, can also open up new processes giving participants opportunity to modulate and affect the evolution of a moving image in a co-agential manner. Agency in all these techniques is in a continuous state of revealing itself through a participant’s action who is always engaged, always part of the process, and always, as in a dance duet, part of an evolving relationship.

Moving forward to future works, I am currently planning two new interactive works for 2022 and 2023 both of which continue my exploration of agencies and participant immediacy through dynamic and relational connectivity within interactive video installation. Each respective piece draws from newly developed video techniques that process, analyse and disrupt the body, reflecting on how these visual representations impact on and affect our ways of being. The first is motion tracking, and in particular the *bounding box*, a form that I suggest represents a further development of the filmic frame, as discussed throughout my writing (see figure 42).



Figure 42. Illustration of bounding boxes for motion tracking

Being primarily associated with surveillance technology the bounding box is laden with socio-political overtones. It is an algorithmically generated rectangle with an inbuilt desire to want to quantify the body through prescribed rules. There are echoes of destabilisation to be found in the way that the bounding box is always in flux, enframing and following bodies, constantly challenging a fixed point of reference much in the way a moving background might do. Parallels can also be drawn between the bounding box and the following-chasing engagement of *Remote Dancing* as it seeks (or to hunts) for subjects to pursue. Rather than perpetuate any oppressive or objectifying aspect of the bounding box, my aim within the installation is to invert the role of the bounding box role by making it a liberating tool for exploration, self-expression and bodily engagement. Through the insights offered by destabilisation and engagements such as following-chasing, I hope to foreground the participant's agential freedom, to create a more balanced and progressive exchange of action.

The second technique known as *data moshing*, also inverts the authoritarian aspects of the bounding box. Rather than being produced for a specific task in mind, data moshing is a reaction to the imposition of form. The technique stems from the creative side of hacking culture where digital video is purposefully corrupted to produce unexpected errors and artifacts. Using data moshed video within interactive video installation offers alternative ways of experiencing and engaging with body movement (see figure 43).

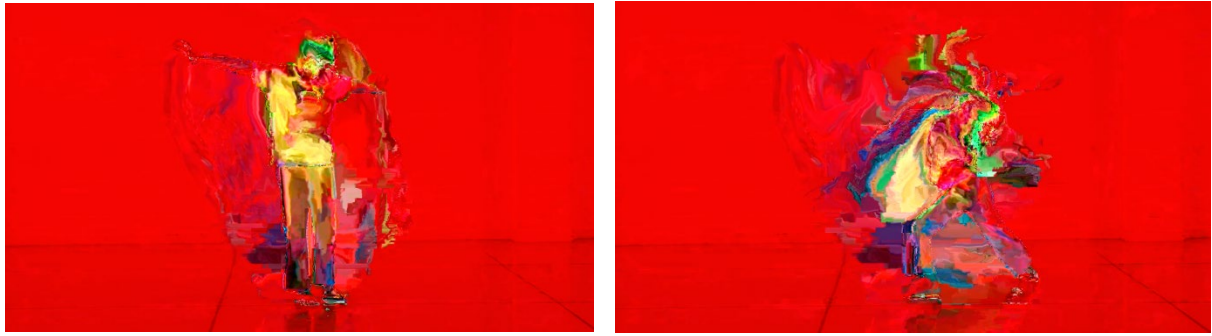


Figure 43. Example of data moshing from initial research by Nic Sandiland

Data moshing can be seen as a form of modulation, presenting a ‘sense of disquiet’ through its mixing of the familiar and unfamiliar expanding my ideas around ‘the “huh?” Factor’, as described earlier in regard to Remote Dancing. The form opens up new ways to further engage the participant that fragments, but at the same time, pulls out nuances and essences of body movement that may not be conveyed through unaffected video imagery, as illustrated through my recent documentation.

The modes of engagement and processes discussed in this writing offer alternative perspectives through which to consider agential implications of new techniques such as of bounding boxes and data moshing within the context of interactive video installation. This focus on agency also presents opportunities to reflect on how contemporary culture impacts on the perception of the body more broadly. In so doing, it expands the application of my observations and insights beyond interactive video installation to diverse participatory experiences in the arts and culture, and beyond to everyday digitally augmented social interactions.

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# Appendix 1

## *List of Collective Body of Works*

### **1. Remote Dancing**

#### **Documentation**

<https://flexerandsandiland.com/archives/nic-sandiland/installations/remote-dancing/>

#### **Presentations**

- 2009 Noorderzon festival, Groningen, Netherlands
- 2007 New Moves festival, Roubaix, France
- 2007 Aberystwyth Arts Centre, Wales
- 2006 Centre National de la Dance, Paris
- 2006 Quay gallery, Isle of Wight
- 2005 Norwich and Norfolk Festival, Norwich
- 2005 Bunker arts, Slovenia
- 2005 Nott Dance Festival, Nottingham
- 2005 Spring Dance Festival, Utrecht
- 2004 Royal Festival Hall, London
- 2004 Metropole Galleries, Folkstone
- 2004 Lyric Hammersmith, London
- 2004 ICA, London

#### **Credits**

Concept & Design	Nic Sandiland
Choreographer	Rosemary Lee
Development	Nic Sandiland / Rosemary Lee
Composer	Graeme Miller
Camera operator	David Gopsill
Performers	Matilda Lee-Kronick, Omari Carter, Henrietta Hale, Frank Bock, Linda Lewcock, Colin MacLean.
Supported by	Arts Council England's Capture fund, RESCEN, Arts Council England touring programme, Artsadmin.

#### **Reviews**

[Guardian Newspaper 2004](#)

### **2. Doing**

#### **Documentation**

<https://flexerandsandiland.com/archives/nic-sandiland/installations/doing/>

#### **Presentations**

- 2010 South Hill Park Arts Centre, Bracknel
- 2009 Swindon Dance Agency, Swindon
- 2008 Chichester University, Chichester

#### **Credits**

Concept & Design	Nic Sandiland
Development	Nic Sandiland

Choreography	Yael Flexer
Sound Score	Nye Parry
Performers	Robert Bell, Bonita Chan, Aya Kobayashi, Lyndsey McConville, Matthew Slater, Aneta Szydlak
Supported by	Bedlam Dance Company

### 3. Orbital

#### Documentation

<https://flexerandsandiland.com/archives/nic-sandiland/installations/orbital/>

#### Presentations

2013 City Moves, Aberdeen Art Gallery, Aberdeen  
2012 Somatics & Technology Conference, Chichester University  
2012 British Dance Edition, Stratford, London  
2011 The Brindley Arts Centre, Runcorn  
2010 Oxford City Gallery, Oxford  
2010 The Lightbox, Woking  
2010 The Place Theatre, London  
2010 Stone Squid Gallery, Hastings

#### Credits

Concept & Design	Nic Sandiland
Development	Nic Sandiland
Choreography	Yael Flexer
Sound Score	Nye Parry
Performers	Aya Kobayashi, Lyndsey McConville, Yael Flexer, Alonna Flexer Sandiland & Aneta Szydlak
Supported by	Arts Council England
Commissioned by	Woking Dance Festival

### 4. Gravity Shift

#### Documentation

<https://flexerandsandiland.com/archives/nic-sandiland/installations/gravity-shift/>

#### Presentations

2021 Kinesthesia Festival, Middlesex University, London  
2017 coLAB, Edge Arts, University of Bath, Bath  
2016 Axis Arts Centre, Crewe  
2015 Circus Gallery, London  
2014 Brighton Digital Festival, The Dome, Brighton  
2013 The Place Theatre, London  
2013 Northern School of Contemporary Dance, Leeds  
2012 British Dance Edition, Stratford, London  
2011 The Lightbox Gallery, Woking International Dance Festival  
2011 Cinedans Festival, Amsterdam  
2011 Digital Futures in Dance conference, Bournemouth  
2010 Brunel University DRHA conference  
2010 Otter Gallery, University of Chichester

## Credits

Concept & Design	Nic Sandiland
Development	Nic Sandiland
Choreographic Advisor	Yael Flexer and the performers
Sound Score	Nic Sandiland
Performers	Andrea Buckely, Aya Kobayashi, Carrie Whitaker, Luke Birch, Saju Hari, Gary Stevens, Guy Dartnell, Chris Copland
MotionBase team	Keith Parker, Alan Dobbie
Software Programmer	Sam Wane
Stage construction	Simon York, Miraculous Engineering
Supported by	Arts Council England, Landsdown Centre for Electronic Art, Staffordshire University
In-kind Support	CueSim

## 5. ByPasser

### Documentation

<https://flexerandsandiland.com/archives/nic-sandiland/installations/bypasser/>

### Presentations

- 2010 Stone Squid Gallery, Hastings
- 2010 Oxford City Gallery, Oxford
- 2010 High Chelmer Centre, Chelmsford, Essex

## Credits

Concept & Design	Nic Sandiland
Development	Nic Sandiland
Supported by	Dance Digital, Oxford City Council, Stone Squid Gallery

## 6. Weighting

### Documentation

<https://flexerandsandiland.com/archives/nic-sandiland/installations/weighting/>

### Presentations

- 2016 Gulbenkian, Canterbury
- 2016 Jerwood Dance House, Ipswich
- 2016 MK Gallery Milton, Keynes
- 2016 The Place Theatre, London
- 2016 The Point, Eastleigh
- 2015 The Emporium, Brighton

## Credits

Concept & Design	Nic Sandiland
Development	Nic Sandiland
Performance Advisor	Gary Stevens
Performers	Luke Birch, Nicola Collett, Chris Copland, Andrew Downs, Annie Lok
Supported by	Arts Council England, South East Dance, Brighton Digital Festival

## Appendix 2

## *Technical Details*

### **1. Remote Dancing**

*Remote Dancing*, employed the real-time video software, [Isadora](#), produced by Troikatronix running on an Apple Power Mac G5 to scrub and affect video content. I have found this software to be reliable, offer low latency for interactivity, and compatible with available hardware such as microcontrollers, webcams as well as a wide range of sensor technologies. The installation used [MIDI](#) protocol to send sensor data into Isadora.

The main sensor block for *Remote Dancing* was based on five Senscomp 6500 ultrasound long range ultrasound transducers placed in a horizontal row at intervals of approximately 200mm. These were controlled by a Basic Atom microcontroller. Whilst the transducers are currently discontinued, suitable replacements [can be found here](#). Likewise, the microcontroller can also be substituted for the more up-to-date and faster [Arduino](#).



Figure 44. Arrangement of ultrasound sensors at the rear of *Remote Dancing* (from the participant's perspective)

The Senscomp sensors were superior to many ultrasound distance sensors at the time having a maximum range of between ten to fifteen metres, even so it was found that signals at a far distance were susceptible to a fair amount of noise, particularly when detecting 'soft' objects such as human bodies. To combat this a number of design features were introduced into the Basic Atom software including the smoothing techniques: data averaging, omission of spurious data (signals over a predetermined threshold), and predictive positioning based on the history of previous data. The hardware was also designed to increase accuracy through having five transducers as opposed to a single sensor. Under normal operation only one transducer is active monitoring the participant's

position within the corridor; running the transducers simultaneously is not possible as their signals interfere with each other. If a transducer measurement falls outside of an expected range, due to misdetection or interference, the software rapidly activates subsequent transducers in sequence, scanning the corridor until a reliable signal is received. When a clear signal is received the system locks onto the respective transducer using it as the new sensor for detection. One might ask why the system does not continuously scan the corridor in normal operation in the first place. For most sensing situations this would make sense; however, for *Remote Dancing*, the latency, as described in chapter 2 should be as little as possible so that there is no perceivable lag between participant action and filmic subject reaction. The act of scanning and sending ultrasound pulses out to the subject takes a significant time if one considers the speed of sound within the ten-metre corridor. Scanning five sensors rather than dwelling on one increases this delay by a factor five: a noticeable delay if used continuously rather than occasionally in the event of a signal error.

In addition to improving accuracy and reliability, the five transducers also allow detection of the participant over the whole two metre width of the corridor. Another significant factor bearing in mind that a single transducer can only detect presence within an angle of 15 degrees.

### **Temperature adjustment**

During touring in 2005, *Remote Dancing* was presented in an outdoor marquee in Utrecht as part of the Spring Dance Festival. During set up and testing it was found that the sensor readings deviated significantly from expectation. It was quickly realised that this was due to a change in air temperature; Easter time Netherlands being around ten degrees Celsius in contrast to the steady twenty degrees of an indoor theatre or gallery space. The speed of sound (and ultrasound) is slower in colder, more dense air, hence the change in readings. To combat this I updated the sensor unit to include a temperature sensor adding real-time signal re-calibration.



## 2022 Revisions

Current updates of *Remote Dancing* explored the use of the more recent LIDAR laser distance sensor in place of the ultrasound transducers to gain greater sensitivity and stability. Unfortunately, it was found that although using laser technology had many advantages, namely much lower latency, its accuracy, and signal noise for resolutions of one to two centimetres was very poor, far worse than the Senscomp ultrasound units. As a result, the revised version of *Remote Dancing* in 2022 combined both LIDAR and ultrasound working in parallel. The arrangement in the current version uses a single Senscomp 6500 ultrasound sensor with two LIDAR sensors as one fixed unit all pointing in the same direction. This unit was attached to a servo motor to allow it to rotate left and right scanning the corridor. The LIDAR sensors functioned to detect the participant's presence and lateral location guiding the servo direction homing in on the participant's position, whilst the ultrasound sensor, once pointing directly at the participant, measured the distance in a more accurate manner.

## 2. *Doing*

In contrast to *Remote Dancing* the installations *Doing* only needed to detect the motion of a participant relative to themselves rather than to an absolute fixed background or surrounding. In other words, to measure how much a person moves, not where they are in space. It is for this reason that I devised a simpler and more robust detection system using 2D visual processing that can still offer a sensitivity to participant motion equivalent to that of *Remote Dancing*. This system used a Logitech C920 webcam connected via USB to a PC running digital artist, Frieder Weiss's, software Eyecon. Eyecon converted participant movement activity and direction of movement into detailed numerical information feeding the data into Isadora. Whilst the older *Remote Dancing* employed MIDI to transmit data, *Doing* and the subsequent installations capitalised on the faster and simpler to use protocol, OSC. Using a webcam with a wide-angle lens meant that I did not have to rely on the restricted detection field of ultrasonic devices, an advantage for *Doing* when detecting movement over a large area.

### ***3. Orbital***

*Orbital* employed a similar technical arrangement as *Doing*. Working with visual capture via the webcam also offered another advantage, namely that I could position the sensor (camera) overhead and out of the way of the participants, whilst still being able to measure their activity,

#### **Revisions**

Since 2010 later versions of *Orbital* and *Doing* dispensed with Eyecon as newer releases of Isadora began to offer similar detection capability that could run simultaneously while playing back video clips on the more powerful Apple MacBook Pro's of the time.

### ***4. ByPasser***

*ByPasser* also employed a similar technical arrangement as *Doing*. Being able to select the webcam's sensing angle and position was a clear advantage when working in the site-specific outdoor locations that the installation was placed in.

#### **Revisions**

Unfortunately, at the time of this publication, Isadora still does not offer information regarding movement direction, a parameter needed required for *ByPasser*. Subsequently the installation still relies on the older and near-obsolete software Eyecon.

### ***5. Weighting***

*Weighting* employed a pair of high-definition media players and an Arduino-based playback controller together with motors and mechanics to tilt a horizontal length of aluminium trussing balancing two video monitors at each end. Synchronisation between both monitors and motor mechanism was achieved through a cost effective custom electronic system that I designed specifically. To synchronise the two video clips I incorporated an infrared LED emulating the media

player remote control 'play' signal. The LED is pointed at the two media players and, when activated, causes both start at exactly the same time. Even after an hour playback there was very little noticeable drift between the two players; however, to guarantee continuous synchronisation the LED automatically restarted the players every hour.

In order to synchronise the mechanism to the video playback I used DTMF touchtone cues on the video's audio track. As the video played DTMF tones at key points in the clip were picked up by the Arduino (via DTMF detection module MT8870) activating the motors to either pull to the left or right raising or lowering the respective monitor.

## ***6. Gravity Shift***

The original MotionBase technology was created and supplied by CueSim running on a Windows 98 PC platform. The custom control software, enabling both manual joystick control as well as automated sequenced movement was coded by Sam Wane, currently senior lecture at Harper Adams University.

## Endnotes

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<sup>1</sup> original guidelines: ‘to fund productions utilising a range of moving-image media and encourage the use of new and emergent media as well as or alongside the use of video and film. Through this initiative we seek to test the market for current and emerging developments in screen-based dance work and raise the profile of screen-based dance nationally and internationally’ (Arts Council England, 2000). The [IMZ archive can be found here](#).

<sup>2</sup> Winterspace (2002, Gibson & Martelli ), Warstars (2001-2, Gibson & Martelli ).

<sup>3</sup> *Mise-en-scène*, ‘the continuum that gives staged elements their effective relation to one another and, thereby, their affective relation to the spectator’ (Lavender, 2006, p. 63).

<sup>4</sup> *Remote Dancing* was also part funded through Arts Council England’s *Capture* series, aimed to promote movement-based work for these respective platforms in the early 2000s.

<sup>5</sup> Or seafront, which was the case for the Hastings exhibition featured in the illustration

<sup>6</sup> I find the succinct description of intermedial theatre, by academic/practitioner Andy Lavender, to be the most helpful for this writing. Lavender’s description of: intermedial theatre as a ‘complex set of relations between media which are always more or less multimodal’ (Lavender, 2014, p. 37) clearly embraces the relational aspects which concern the collective body of works.

<sup>7</sup> By relational I mean the interrelationships of the participant’s body and filmic subject in space as opposed to the political associations which accompany Nicolas Bourriaud’s, ‘relational aesthetics’ (Bourriaud, 2002, p. 14).

<sup>8</sup> I discussed Stark Smith’s use of the term ‘grazing’ with Jackie Adkins, co-participant of the Cumbria workshop and lecturer in dance at Bath Spa University. A current definition on the New York Contact Improvisation Blog differs slightly from our account of grazing, either because Stark Smith redefined the term in her later years, prior to her death in 2020, or due to insufficient documentation (Contact Improvisation Blog, 2022).

<sup>9</sup> Movement restriction depends on the specific work, *Remote Dancing* poses the most restriction, being a narrow corridor, whilst the later works support more liberal engagements.

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<sup>10</sup> Hill and Paris note the relevance of Hall's contributions placing these alongside other 'philosophical projects gaining currency in the 1960s, such as Merleau-Ponty's work on the primacy of perception...and Lefebvre's work examining the cultural production of social space' (2014, p. 7).

<sup>11</sup> The unframed and 'unframing' is an important concept to which I will return and unpack in detail below with particular reference to my 2015 work, *Weighting*.

<sup>12</sup> Bishop uses the term *viewer* as is the convention in visual art practice whereas I am employing *participant* to highlight the interactive nature of the collective body of works.

<sup>13</sup> Although other dancers also appear in *Orbital*, they take a more background role, visibly diminished by the camera's fisheye lens. The main dancer who holds the camera stick and meets the participant's gaze always takes a dominant and central role.

<sup>14</sup> Initially the sensors introduced a noticeable delay between participants action and filmic reaction; however, the issue was resolved through strategic technical design. Being ultrasonic the sensor reaction is dictated by the speed of sound. In a 10m corridor, at the furthest distance from the sensor, a participant would experience a 0.06 second lag which is perceptible for most people. The lag was reduced to an acceptable 0.03 second in the design of *Remote Dancing* by a combination of extrapolative digital processing and predictive algorithms. Later installations avoided this lag by employing visual detection systems.

<sup>15</sup> [Documentation of Tall Ships](#), and [documentation of Under Scan](#). Although Lozano Hemmer does use video scrubbing to imbue filmic subjects with a sense of liveness, playing, the material backwards and forwards on a loop, this process is not responsive to participant action.

<sup>16</sup> A 25 frames per second (fps) film clip, when scrubbed at, for example ¼ speed plays at only 6 fps rendering it stilted or less fluid as perceived by the participant. In contrast a 100 fps clip scrubbed at a quarter speed plays back at 25 fps retains the continuous and fluid feel of the movement it contains.

<sup>17</sup> The definition of proprioceptive sense 'is not always clear cut' (Reynolds & Reason, 2012, p. 18) and often includes the visual sense as described by David Lee and Eric Aronson (1974). For the purposes of this writing I will limit my definition of proprioception to the 'stimulation produced and perceived *within* the body relating to position and movement *of* the body' as described by writer practitioner Josephine Machon (2016, original emphasis).

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<sup>18</sup> Hall, who I discussed in Chapter 1, notes how freedom to move impacts on our awareness of physical surroundings: ‘man’s sense of space and distance is not static... it has very little to do with the single viewpoint linear perspective developed by the Renaissance artists’ (Hall, 1966, p. 114).

<sup>19</sup> Stelarc’s work is [documented here](#), interviews reflecting his comments on the body being obsolete can be found [here](#) (in conversation with Liz Carr) and [here](#) (focusing on his ‘third ear’ project).