

# Understanding in Our Bodies: Nonrepresentational imagery and Dance

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In this paper I will be discussing means through which non-representational imagery in dance, and in particular in dance-related activities such as digital choreography, can be understood. I argue that, although movement that has representational content might have a meaning that can be translated into words (through a verbal interpretation of the meaning of gestures, relationships of dancers on the stage, and other features), more nuanced interpretations of the movement are understood through an embodied understanding of their more detailed subtleties. I further argue that non-representational movement, which does not pretend to represent anything, can communicate other types of understanding as one engages in the act of viewing the movement of dancers, and more particularly in this paper, digital imagery that uses human movement as its source.

The artistic focus of rigorously non-representational dance works such as those prevalent in the 1960s, '70s and '80s (for example the work of Merce Cunningham, Kenneth King and Lucinda Childs<sup>1</sup>) was on an interrogation of formal aspects of the choreographic art for their own sake, rather than through their use as a vehicle through which to articulate narrative or emotion. The works that resulted led to a developing understanding that the choreographic art could be a formalist, as well as an expressive, endeavour. Other forms of non-representational dance work (for example the work of American postmodern choreographers such as Yvonne Rainer, Steve Paxton, Simone Forti and, later, British choreographers Rosemary Butcher and Siobhan Davies<sup>2</sup>) focused on a choreographic exploration of the intricacies of the detail of the movement of human bodies as they move, and dance. Whilst expressive content in the movement often emerged as a result of this exploration this was not the intention of their works.

In Britain this kind of choreographic focus extended its remit to generate works that have an emotional resonance. They did not, however, *represent* emotional states. In order to understand the nuances of 'meaning' inherent within the movement and the interrelationships between the dancers this kind of work requires audience members to attend as much to the sensations of their biological and physiological systems as to the gestural images before them. It is through this, our affective response to the *motions* of the dancer, that we reach an understanding of the works, rather than through an interpretation of the meaning of the movement of the dancers in more narrative terms.

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<sup>1</sup> [www.merce.org](http://www.merce.org), [www.lucindachilds.com](http://www.lucindachilds.com)

<sup>2</sup> [www.rosemarybutcher.com](http://www.rosemarybutcher.com), [www.siobhandavies.com](http://www.siobhandavies.com)

This claim that our understanding of dance and choreography goes beyond interpretation of an identifiable emotional state or narrative is by no means original. As long ago as 1933, John Martin forwarded the notion that metakinesis<sup>3</sup> is the means through which we understand dance. Martin (1933) argued that metakinesis is sited in the physiological responses of the viewer to the dancer/s, a process he refers to as muscular or kinaesthetic sympathy. He noted that when seeing movements that represent an action with which one is familiar

“...you have no difficulty in following their meaning because you have often done them yourself ... instantaneously, through a sympathetic muscular memory you associate the movement with its purpose.” (ibid.p.12).

He goes further, suggesting not only that that movement is ‘...the link between the dancer’s intention and your perception of it’ (ibid.) but also that it is “...a medium for the transference of an aesthetic and emotional concept from the consciousness of one individual to that of another” [ibid. p.13]. ‘Metakinesis’ describes a psychic<sup>4</sup> process that is correlated with physical action, a concept that is grounded in the theory that “the physical and the psychical are merely two aspects of an underlying reality” (ibid.). Martin’s analysis of the concept of metakinesis became more sophisticated in 1939 (Martin 1939, pp.42-54], although he appears to have abandoned the use of the term in these later writings. As will be seen, his intuitive understandings of the way in which we understand dance have proved to be prescient.

Unfortunately Martin’s position became not merely unpopular but considered irrelevant to dance analysis in the 1980s. At this time a primarily structural mode of analysis began to dominate (which in Britain found its apotheosis in a book entitled ‘Dance Analysis’ (Adshead et al., 1988/1994) eventually published in 1988. During the 1980s dance analysis had become a systematic exercise in unpicking the features of dance from the gestalt of the work (for example, observing the fine detail of movements both spatially and eukinetically, the use of time and space in a dance, the number and gender of dancers, relationships between dancers, sound, visual design, costuming, and so on) in order to develop and/or interpret meaning/s of the dance from a conscious understanding of these features. Whilst such analysis still has a place in understanding theatre dance, it by no means tells the whole story. Indeed, even then there was a sense that something was missing in this, more objective, mode of approaching an understanding of dances. In America a shift in the study of dance was taking place. Dance academics began to examine dance works from a socio-political and cultural perspective, supplementing a more structural analysis of dance with a socio-political contextual framework encompassing issues addressed by post-structuralist and cultural

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<sup>3</sup> Martin (1933. p. 13) found the term metakinesis in an ‘obscure footnote in Webster’s Dictionary.

<sup>4</sup> The term psychic was used at this time to mean ‘that which pertains to the mind’.

studies (Foster 1986)<sup>5</sup>. This position was later embraced by Adshead and other British academics (Burt, 1995, Adshead 1999, Briginshaw, 2001). It remains a dominant mode of dance analysis in the early 21<sup>st</sup> century.

Recently, however, Martin's position concerning processes through which we understand dance has begun to experience a resurgence of interest amongst dance scholars<sup>6</sup>. During the course of the last two decades Martin's intuited notion of 'metakinesis' has been vindicated by neuroscientists. The operation of the Mirror Neuron System, discovered by Vittorio Gallese and his colleagues at the University of Parma in the mid-1990s (Gallese 1996, 1998), bears an uncanny resemblance to the claims made by Martin in the quotation on p.2.

The Mirror Neuron System is directly related to action, both active and observed. This discovery implicitly acknowledges the role played by 'metakinesis' (now referred to as embodied cognition) in the communication of 'meaning' through movement. This kind of 'meaning', however, is not one that is easily translated into words, for, rather than the movement necessarily being representative of something outside of itself, a 'sign' for some other concept or feature, neuroscientists argue that it can also be *intrinsically* 'meaningful'. In neuro-scientific parlance the movement itself resonates with our 'primary' or 'core' consciousness, that level of consciousness that lies below reflective or 'extended' consciousness<sup>7</sup>. The former underpins what Deleuze and Guattari (after Spinoza) call 'affect'.

It is evident that we do not always pay sufficient attention to these more subtle modes of consciousness, taking for granted the sensations that we feel, but barely notice, as we experience movement vicariously. This is unfortunate as I would suggest that it is this that gives rise to that intuitive understanding of movement phenomena that resist being reduced to verbal interpretation, whether that movement is live, or a recorded representation. In this paper, I will suggest that non-representational digital choreography grounded in a choreographic sensibility that is permeated by the principles of Release Techniques<sup>8</sup> provides an interesting arena through which to unpack this notion. Non-representational imagery such as that shown in Figure 1 does not represent a physical image of the material, fleshly dancer, rather it presents images that simulate flows of sensation that might be experienced by dancers as they move.

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<sup>5</sup> Naomi Jackson shows that the two writers share certain concerns, but that Foster begins to site dance in the post-structuralist rather than analytic philosophical tradition

<sup>6</sup> A 3-year research project, funded by UK's Arts & Humanities Research Council, "Watching Dance: Kinaesthetic Empathy", is currently taking place at Manchester University.

<sup>7</sup> These two sets of terms are used by neuroscientists Antonio Damasio (2001) and Gerald Edelman and Guidio Tononi (2000) to identify different levels of consciousness

<sup>8</sup> The term Release Techniques, which is not a dance style, refers to a form of dance movement that accentuates flow of weight and energy over shape and line.



Fig. 1. Digital imagery from *Eros Eris* (2007)  
Sarah Rubidge (Digital imagery), Liz Lea (Choreography)  
(Access this imagery on <http://www.sensedigital.co.uk/EE4.htm> )

When choreographers entered the domain of the digital in the mid-90s they brought with them a sensuality that was not particularly evident at that time in digital art practices<sup>9</sup>. Many choreographic artists became interested in the effect on viewers and participants of the qualitative features of digital imagery derived from dance movement. Amongst these were Thecla Schiphorst (*BodyMap* 1995-6), Gretchen Schiller and Susan Kozel (*trajets* 2000).<sup>10</sup>

Much of the non-representational work created by choreographers for the digital domain uses relatively conventional choreographic devices to address the qualities of movement embodied in digital imagery. These include structuring devices such as canon, unison, mirroring, retrograde, and so on, and transformation of the qualitative aspects of motion, for example, modulation of spatial patterning and temporal factors, change of scale (all of which could be said to come under the umbrella of theme and variation). These choreographic devices, alongside more radical image processing techniques (see overleaf), are used extensively by digital choreographers as a means through which to generate an affective response to their imagery.

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<sup>9</sup> A notable exception is Paul Sermon's *Telematic Dreaming* (1992)

<sup>10</sup> These were all highly collaborative works They can be accessed respectively on [http://www.iamas.ac.jp/interaction/i97/artist\\_Schiphorst.html](http://www.iamas.ac.jp/interaction/i97/artist_Schiphorst.html),  
<http://www.meshperformance.org/trajets.html>

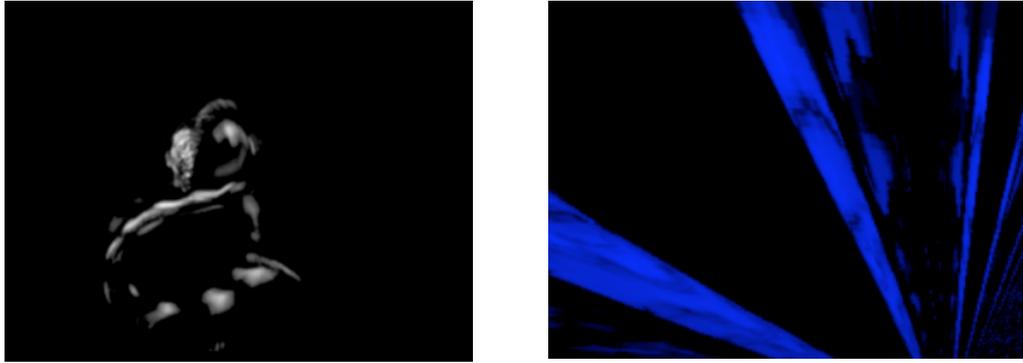


Fig. 2. Digital imagery from *Eros, Eris* (2007)  
Sarah Rubidge (Digital imagery)  
(access via <http://www.sensedigital.co.uk/EE1.htm>)

I noted earlier that we do not always pay attention to the nuances of sensations that underpin our waking life. In the work mentioned earlier the artists are specifically interested in focusing the viewer and/or participant's attention on the deeper levels of their engagement with, and ultimately understanding of, the world around them. Such works offer a prime example of the way in which we understand non-representational movement through the senses.

An explanation for this has become increasingly evident in the work of a range of scientists, including neuroscientists Damasio (1999), Edelman (2000), Evan Thompson (2007) and biologist Steven Rose (2005). They indicate that the activities of the substrata of humans' material bodies (from chemical and genetic codes, cells and tissue, flows of the nervous and circulatory systems to the activity of the neuronal networks) are hidden interfaces between human beings and their material and immaterial environments. The constant and autonomic activities of this 'hidden' body are the underpinnings of our affective life, of every encounter we have with the world (and by extension our encounters with art) and give rise to the embodied knowledge that underpins even our conceptual life (Edelman, 2000; Lakoff and Johnson, 1980).

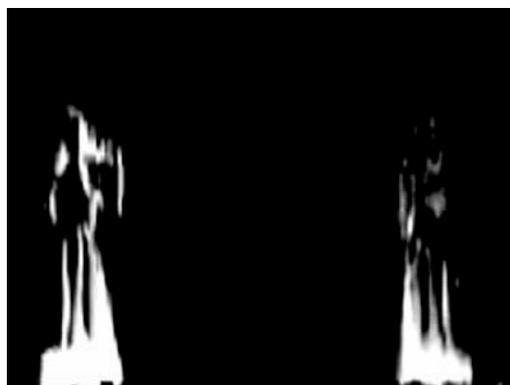


Fig. 3. Digital imagery from *Hidden Histories* (2001)  
by Sarah Rubidge and Joseph Hyde  
(access via <http://www.sensedigital.co.uk/hh1.htm>)

Many digital artists with a choreographic sensibility (for it is no longer the domain of the choreographer as works by digital artist Kirk Woolford attest<sup>11</sup>) appeal directly to this 'hidden' body. Taking human movement as their starting point, they suggest through their imagery the flows of energy that betray the unseen motion that lies within the material world. This digital imagery is designed to be perceived by the viewer as much through the 'kinaesthetic' sense as through the visual sense. It frequently constitutes an interweaving of the abstract representations of rhythmic flows that articulate the intensities that lie within perceived motion rather than a realistic representation of its external appearance.

This could serve to sensitise viewers to the more subtle flows of human movement that is prevalent in much of Steve Paxton's, Rosemary Butcher's and Siobhan Davies's work. The sensations that we experience at this deeper level go beyond the sensations of the flesh. Rather, the residue of that sensation resonates in the material body of the viewer as the 'thermometer of a becoming' (Deleuze and Guattari, 1994, p179). Here we are dealing not with an overt experience of physical sensation, but with the altogether more liminal notion of *affect*.

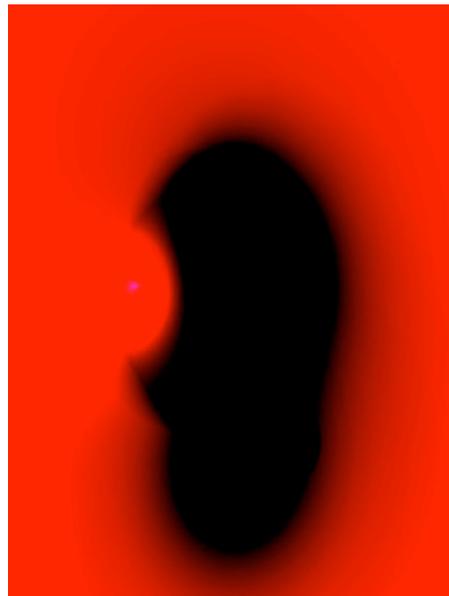


Fig. 4. Sample of digital imagery from *Fugitive Moments* (2006)  
by Sarah Rubidge, Beau Lotto and Erwan le Martelot  
(Access this imagery in motion on <http://www.sensedigital.co.uk/FMIMovs.htm>)

Affect is described by Deleuze scholar Brian Massumi as "a prepersonal intensity corresponding to the passage from one experiential state of the body to another" (see preface to Deleuze and Guattari, 1987, p.xvi). As such it is indeterminate, fleeting, barely felt before being momentarily superseded by yet another fleeting state. These prepersonal experiential states, I suggest, are aligned with those deep body-states

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<sup>11</sup> [www.bhaptic.net](http://www.bhaptic.net) offers examples of Woolford's works.

described by Damasio as 'background emotions' (calm, tension, well-being, dis-ease)<sup>12</sup>. I would further suggest that it is just such states that are generated by the very imagery whose meaning is not easily graspable by the conscious mind (reflective consciousness), and thus not easily articulated through words. In this paper I will be focusing on this kind of digital imagery, imagery that has the ability to create affective resonances that "...intervene on the microscopic variations of a body's biology, anatomy, movement and perception, while at the same time multiplying and re-mixing these variations" (Portanova, 2006)<sup>13</sup>, independent of 'content' or 'meaning'.

The experiential state embodied in the notion of affect is complex and indeterminate. It is aligned to the Deleuzian notion of intensities, whose behaviour is subject to constant variation and always implicated in other, parallel, intensities. This interweaving of intensities results in the generation of an ever-variable ensemble of differential relations (Deleuze 1994). This seems to me an apposite analogy for the workings of the human body, inasmuch as beneath the mass and volume of the flesh of our bodies lies a dynamic collection of interrelated systems of physiological flows, rhythms and intensities, each of which affects and is affected by the others. The state of 'being' in each of these systems is in a state of continuous variation, and transition that, in Deleuze and Guattari's terms "...consists entirely of relations of movement and rest between molecules or particles, [and] *capacities* to affect and be affected" (*my emphasis* Deleuze and Guattari, 1987, p.261). Each change in one system impacts upon other systems to generate further variations and flows.

As will be seen, it is this that gives rise to our sense of the nuances of motion, and thus to *affect*. Thus, I would suggest, affect is a form of understanding that operates through the always active liminal perceptions in our bodies, and that many digital artists who exhibit a choreographic sensibility appeal directly to this substratum of our understanding.. It is here that the Deleuzian notion of 'affect'<sup>14</sup> begins to tally with current research by scientists such as Damasio (1999), Edelman (2000), Vittorio Gallese, Francisco Varela (1992), Semir Zeki (1994) and Evan Thompson (2001/2007).

These neuroscientists argue that the 'subpersonal' activity of the physiological and neuronal systems operating in parallel create networks of activity that give rise to both to our perceptions of and experience of our environment, whatever that environment might

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<sup>12</sup> Background emotion is distinguished from primary emotion (sadness, joy, disgust), secondary, and social, emotions (embarrassment, pride, jealousy) which, unlike background emotions, are the province of the autobiographical self. Background emotions are the province of what Damasio calls the prepersonal 'protoself'.

<sup>13</sup> This is as true of the visual digital imagery as it is of the sonic imagery she uses as her paradigm.

<sup>14</sup> Although strictly the notion was first made evident in the philosophy of Leibniz, Deleuze has reclaimed the concept for the contemporary world, which leads me to conceive of it as a Deleuzian notion.

be. These subliminal modes of perception respond to even indeterminate images experienced in art works (Freedberg and Gallese, 2006) and through bodily resonance become our embodied understanding of those works.

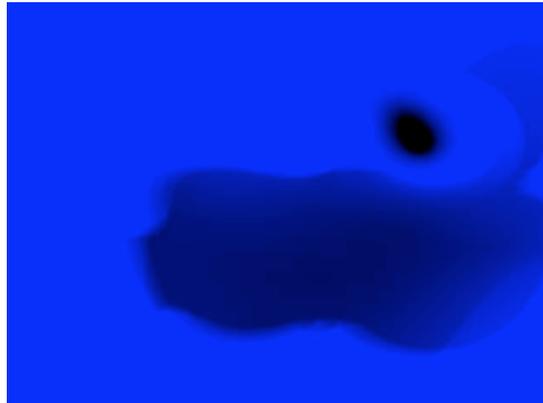


Fig. 5. Sample of digital imagery from *Fugitive Moments* (2006)  
Sarah Rubidge, Beau Lotto and Erwan le Martelot  
Access this imagery in motion on <http://www.sensedigital.co.uk/FMIMovs.htm>

This is an entirely proper mode of understanding of digital art works deriving from choreographic concepts. Phenomenologically our responses to the world are first and foremost experiential (lived experience). As well as seeing representations of 'what' it is out there we 'feel' what is out there. I would argue that in our engagements with non-representational artworks it is as important to experience how the imagery *feels* to us, particularly those feelings that we cannot describe or even identify, as it is to know *what* it represents, particularly when viewing imagery such as that which I have been referencing.

But what is so important about this in relation to the process of viewing non-representational imagery? Neuroscientists such as Damasio and Edelman help to illuminate the nature of this mode of understanding by introducing structures of consciousness that include not merely reflective consciousness, which has long been the paradigm of consciousness in the West, but also the more sub-liminal levels of consciousness derived from the autonomic physiological systems. These they call 'core' consciousness (Damasio) and 'primary' consciousness (Edelman). This mode of consciousness generates the kind of understandings that are sometimes referred to as subconscious, unconscious or pre-conscious. That is, understandings that lie outside of the remit of reflective consciousness, and thus are beyond being understood through language, for they are often impossible to articulate satisfactorily in words. Bergson (1899, p.132) articulated this succinctly, noting that "the word with well-defined outlines ... overwhelms or at least covers up the delicate and fugitive impressions of our individual consciousness."

But how *do* we understand at levels below those to which we have conscious (and thus

shareable) access? Neuroscientists involved in Mirror Neuron research invoke notions of empathy, much as Martin did in 1939. Their experiments have shown (Gallese et al 1996) that humans respond in neuronal terms not only when they engage in an action (that is, when in an expressive mode<sup>15</sup>), but also when they observe someone/thing<sup>16</sup> engaged in that same action (that is, when in a receptive mode). This response is particularly evident if the observer has previously had direct physical experience of engaging in the action.

This last claim has been born out in a context particularly relevant to this paper by experiments undertaken by a group of neuroscientists from the University of London (Beatrice Calvo-Merino et al., 2005). Using an fMRI scanner they measured the responses of two experienced dancers, one a capoeira dancer, the other a ballet dancer, to two video clips of choreographed dance movement, a ballet sequence and a capoeira sequence<sup>17</sup>. The experiments revealed that the neuronal activity in the Mirror Neuron System when in receptive mode was greater in the brain of a capoeira dancer when watching capoeira dance than when watching ballet. The opposite obtained when the subject was a ballet dancer, for whom the ballet sequence generated the strongest response in the Mirror Neuron System in receptive mode. This supports the claims of researchers at the University of Parma. These researchers (of whom the most prolific is perhaps Vittorio Gallese) argue that the brain generates an embodied simulation of certain human motions when perceiving motions similar to those one has had experience of performing. I suspect that this could be of particular relevance to the process of developing an intuitive understanding of apparently non-representational kinetic digital imagery grounded in human movement. Indeed, experiments with biological motion indicate that we have then ability to recognise human motion from the most minimal of motion clues<sup>18</sup>.

Later, neuroscientists began to speculate that the Mirror Neuron System activates intersubjective understanding, or empathy, for it seems to enable us to anticipate others' intentions 'intuitively' (Fogessi et al, 1998; Gallese & Goldman, 1998; Gallese, et al. 2001), and thus to predict or anticipate their subsequent actions.

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<sup>15</sup> The Mirror Neuron System has two operational modes, expressive (when the organism is enacting a movement) and receptive (when an organism is observing someone/thing else engaged in a movement)

<sup>16</sup> As artistic works using industrial robots attest (see Motionhouse's *Digger Dance* from The Edge (2004) <http://www.motionhouse.co.uk/wtcfilm.htm#>; *Devolution* (2006) Garry Stewart, Australian Dance Theatre) <http://www.realtimearts.net/article/issue72/8089>)

<sup>17</sup> The movements in each video clip were matched up as far as possible in spatio-temporal terms by a dancer/choreographer according to criteria of: speed, part of the body employed, body location in space, direction of body movement.

<sup>18</sup> Scientists offer some support for this notion though their experiments with biological motion, whereby the reduction of a motion captured image of a person walking to a series of dots were recognised as such by subjects. (Initiated by G.Johanssen in 1973, the study of biological motion continues to attract the interests of psychophysicists such as Kourtsi Z, 1999; Thornton et al. 2003.)

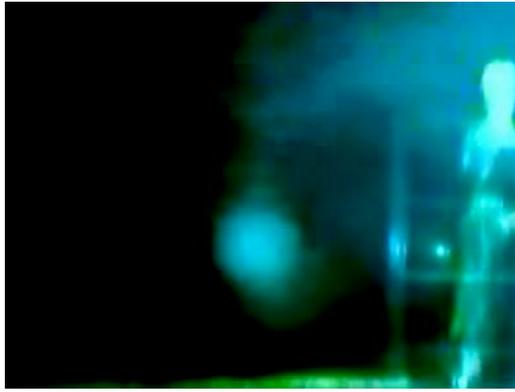


Fig. 6. Semi-representational Imagery from *Hidden Histories* (2001)  
Sarah Rubidge and Joseph Hyde  
(Access this imagery in motion on <http://www.sensedigital.co.uk/HH1.htm>)

The fact that the Mirror Neuron System is more active when subjects have direct experience of an observed activity indicates that such predictions might be less accurate if subjects do not have experience of the action, as they have no basis upon which to build an embodied simulation, and thus a basis for prediction.

It is interesting in the context of this conference to note that neuroscientists such as Gallese, Zeki and Calvo-Merino et al are beginning to extend their field of study from functional movement to artistic representations of human movement (Zeki, 1994 and 1998, Freedburg and Gallese 2006, Calvo-Merino et al., 2008). Of equal interest is that the scientists specifically acknowledge that, whilst neuronal activity is a *necessary* condition of the artistic experience, it is not *sufficient* condition, the latter also requiring a phenomenological dimension. They thus acknowledge that art is a complex entity that can be subjected to any number of analytic strategies, from the purely scientific to those with their grounding in non-scientific fields. They also recognise that, whilst measurement of neurons when subjects are observing artistic imagery gives certain important information it is not sufficient evidence upon which to build a claim concerning human responses to art involving movement.

These scientists do not confine themselves to the scientific domain in their studies, however. Indeed, on the grounds that the 'lived body' is the constitute foundation of any perception, many invoke phenomenologists such as Merleau Ponty to underpin their arguments (Gallese, 2001, 2005, 2007; Evan Thompson, 2001 and 2007; Francisco Varela, 1992). Gallese in particular drew the threads of the scientific and the phenomenological together when he posited a process called the Shared Manifold of Intersubjectivity (Gallese 2001). This process, he argues, incorporates both a physiological and a phenomenological level. The Shared Manifold of Intersubjectivity is closely aligned to Martin's notion of metakinesis and kinaesthetic empathy. Indeed, this theory could explain how we glean an affective response to movement, whether live or digital, artistic or functional, and from there begin to understand the kind of non-

representational digital imagery that I refer to in this paper. By extension, it might also explain how such imagery might engender an aesthetic experience that is related to the states of being that we experience as human beings when observing human motion (Freedberg and Gallese, 2007). The former certainly seems to involve experiencing similar body-states to those when we experience emotion, whether background, personal or social<sup>19</sup>.

Gallese posits that there are three levels in the shared manifold of intersubjectivity. As an integrated system, each level of activity interacts with the other levels, but can be analysed separately. The first is the *sub-personal level* – the neurophysiological domain which is examined through experiments that are concerned with the activity of the brain. The results of these experiments have given rise to neuroscientific explanations of, and speculations concerning, human behaviour and modes of understanding. The second is the *functional level* – the domain of the (embodied) simulation routines that take place in the brain. These enable internal representations of body-states previously experienced when the individual was in motion to be generated in the brain through the activation of the mirror neuron system as s/he observes an action. The third is the *phenomenological level* – at which intersubjective empathy comes into play. Here they argue, as a result of embodied simulation, we experience similar sensations and background ‘emotions’ to those with whom we interact, and find that the actions of others become meaningful to us at a pre-linguistic level<sup>20</sup>. In non-representational digital imagery only traces of the human motion that gives rise to these body states remain, yet it seems that when viewing it we can *feel* something similar to that which we have experienced when viewing live human movement.

Of interest in the context of this paper, another neurological mechanism, which allows a dialogue between visual and kinetic experiences to take place, is also brought into play when we observe movement. We possess a visuo-association cortex which is involved in advanced multisensory and sensorimotor integration as we respond to our experiences (Zeki and Lamb, 1994). Our perception is therefore physiologically multimodal, the somatosensory cortex and the dorsal stream of the visual system, and with it the ventral stream<sup>21</sup>, being integrated in the parietal lobe (Gallese, 2005). All this

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<sup>19</sup> Damasio makes a clear distinction between feelings and emotions: in his taxonomy an emotion is the autonomic reaction to a stimulus, a feeling is a perception of the body-state generated by such reactions. As such, in Damasio’s terms emotions are the fundamental mechanism for the regulation of life, and are the foundations for feelings, whereas feelings are more akin to the popular understanding of emotion. It is the former to which I refer here.

<sup>20</sup> Crucially, all levels of the shared manifold are interdependent, there being a strict coupling between the activities of the affective and sensorimotor neural systems in any experience (Gallese, 2001. p. 46)

<sup>21</sup> The dorsal stream is the ‘where’ or ‘how’ stream, and is believed to be involved in the guidance of actions and recognizing where objects are in space. The ventral stream is the ‘what’ stream, and is associated with object recognition and form representation. The two are

leads to the establishment of a multimodal cortical network. One could therefore surmise that the processes involved in these cortical systems facilitate physiological connections between what is 'seen', what is experienced and what is 'known', even when viewing images that are non-representational. As such this cortical network might very well affect our ability to non-consciously make connections primarily kinetic and visual stimuli when watching the kind of non-representational digital imagery discussed in this paper<sup>22</sup>.

I would suggest that both these processes, and the intersubjective understanding of movement at a neuronal level, could underlie our intuitive responses to non-representational kinetic digital imagery that is grounded in human movement. This is supported by David Freedberg and Vittorio Gallese (2007), who argue that an important element of our aesthetic response to art that in some way involves the representation of movement consists of an activation of embodied stimulations mechanisms that simulate not only actions, but also the *implied* actions, emotions and/or corporeal sensations articulated in an art work. Significantly they suggest that embodied simulation is activated not only, as would be expected, by figurative imagery, but *also by non-figurative contemporary art*, arguing that

“...the relationship between embodied empathetic feelings [simulations] in the observer and the quality of the work forms a substantial part of the experience of [this type of] artwork.” (p. 199).

Even when there is no narrative or overt emotional content in an art work, a bodily resonance, or empathetic reaction, can arise through a bodily resonance with the implied movements embedded in the physical traces of non-representational kinetic imagery (Freeberg and Gallese 2006).

I would argue that the studies undertaken by neuroscientists into neuronal responses to moving imagery allow us to reclaim Martin's notion of kinaesthetic empathy, by helping us to understand the mechanisms that allow us apparently to experience a sense of corporeal empathy when we view both non-representational dance imagery and kinetic non-representational digital imagery that reveals the 'sensible essence' of its human source material. Indeed, kinetic images such as these, being grounded in human movement behaviours, could very well generate an embodied simulation in those familiar with the shaping and qualities of the implicit source of the motion (dance movement grounded in what now tend to be referred to as somatic practices), and thus engender an embodied understanding of the flow of human movement implied in the non-representational digital imagery.

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interconnected. It is notable that the ventral stream goes into the temporal lobe, which contains the center for smell, and some association areas for memory and learning

<sup>22</sup> Moving examples of much of this imagery can be found on [www.sensedigital.co.uk](http://www.sensedigital.co.uk), specifically on the pages that refer to *global drifts*, *Fugitive Moments* and *Eros Eris*.

As such, I would suggest that we intuitively understand the implicit emotional states and 'meanings' embodied both in non-representational dances and in non-representational digital imagery through an embodied cognition which has its roots in part in the activity of the Mirror Neuron System.

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