

# Mapping Outside the Frame: Interactive and Locative Art Environments

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Interactivity and 'locativity' have become the buzz words of new media art. In spite of interactivity being possibly the most salient and significant feature of new media art it is not widely understood or thoroughly theorised. This paper will seek to explore the fundamentals of interactivity and in the course of this investigation we will examine the significance of locative media, the most recent form of new media art.

One of the enduring goals of avant-garde art from Dada onward has been to deconstruct the barrier between the viewer and the work of art.<sup>1</sup> Attempts to achieve this by undermining the elitism of the traditional notion of the aesthetic object have been persistently defeated by the fine art system wherein even a public convenience urinal such as Marcel Duchamp's *Fountain*, 1917, is transmuted into a precious *objet d'art*. *Fountain* recently sold at auction for over a million dollars.<sup>2</sup> The transformation of virtually any form of artistic production into extremely precious objects means that visiting an art gallery/museum is akin to visiting a bank vault. The visitor is constantly watched by guards and CCTV and segregated from the precious objects by a variety of barriers.

During the 1960s a great deal was made of the 'phenomenological' involvement of the viewer with minimalist sculpture. In reality this involvement was not dramatic and reached its high point when one was allowed to walk on Carl Andre's metal tile sculptures. It is rare to be offered the opportunity of doing that today. Art at the turn of the millennium has been marked by a burgeoning installation art movement which is the latest attempt to involve the viewer in the work of art.

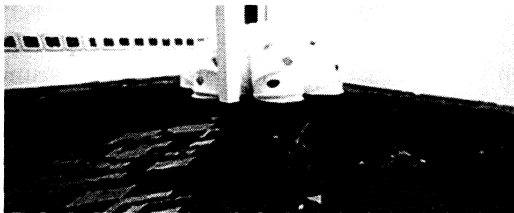
Most texts on installation art put forward the thesis that installation offers a greater degree of viewer participation. Accordingly Claire Bishop suggests that installation art is 'the type of art into which the viewer physically enters and which is often described as "theatrical", "immersive" or "experiential"'.<sup>3</sup> In reality the majority of installations are not that different from traditional sculpture. One can cite, for instance, Jason Rhoades and Paul McCarthy's 'transgressive' *Sheep Plug* (2004), installation at the 'Dionysiac' exhibition at the Centre Pompidou, Paris, 2005 in which a great deal of junk material was spread out across a gallery floor.<sup>4</sup> As both artists now possess superstar status their 'transgressive' 'anti-art' stuff has been transmuted by the fine art system into precious objects. Accordingly, visitors had to be channelled by a path through the detritus delineated by tape stuck onto the gallery floor. This created an experience not unlike that of looking at a sculpture on a pedestal. And this lack of immersion and segregation of the viewer from installation art is not uncommon.

Indeed one can criticise contemporary installation sculpture on the basis that it aspires to a more intimate viewer experience yet at the same time is more intimately allied to the fabric of the gallery apparatus than has ever been the case before. Artists of the 1960s attacked the institution of art as did the Dadaists, but at the turn of the millennium there has arisen a new complicity between the so-called avant-garde artist of today and the capitalist art system that has the power to transmute virtually anything into an extremely precious object.<sup>5</sup>

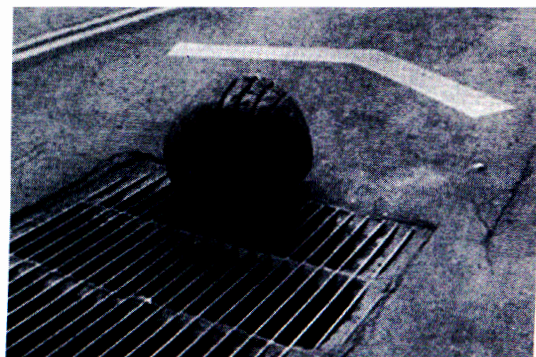
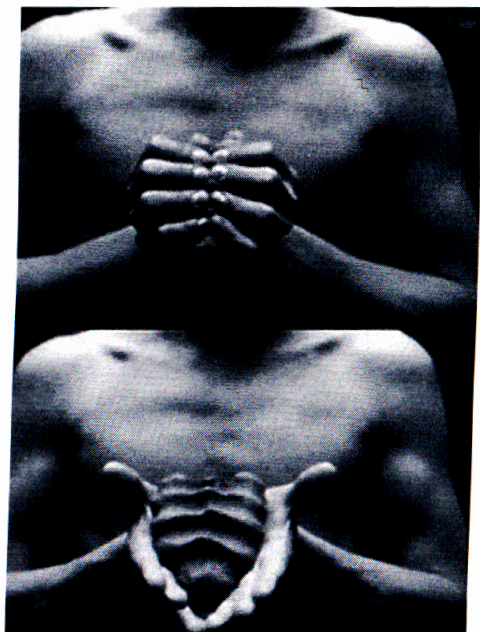
The technical means of creating viewer participation in new media art can be as simple as a mouse or touchpad. In more elaborate gallery installations more sophisticated sensors can be used such as web cams and floor pads. Such sensors detect the movement of people in the viewing zone of the work of art and use this data to either cause alterations in the artwork being displayed or, alternatively, to generate a visualisation of this movement. Locative art is an extension of such interactivity that uses devices such as GPS tracking to create a much larger zone of data collection. It is also generally the case that locative art often uses the data collected to create the visualisation rather than simply altering an already-existing data-driven work of art.

### Interactivity

By examining the spheres of new media art and fine art it is possible to suggest three dimensions of interactivity which can intermingle and intersect. First, there is the game which is currently drawing a great deal of attention in the field of new media, due in part to the extreme popularity of computer games. There is no doubt that the game creates a high degree of interactivity, but making this aesthetically sophisticated is not so easy. We will argue that whereas traditional fine art has almost exclusively avoided this zone of inquiry new media art has been successful in creating game-like interactivity that is elegant and sophisticated. Second, there is physical interactivity which can be as simple as using a mouse to interact with online art, or which can become phenomenologically embodied when more sophisticated sensors are deployed in a gallery environment. The third mode of interactivity involves the engagement of visual perception; this is the dimension in which fine art excels. We will argue that this mode of interaction is defined by its disembodiment, whereas the capacity of new media art to introduce physiologically-oriented input devices enables it to go beyond the disembodied gaze into the dimension of embodied interactivity.



**Fig. 1** *Frisbee House* by Carsten Höller (above) and Gabriel Orozco's Ping Pong Table (right), *Common Wealth*, Tate Modern, 2003.



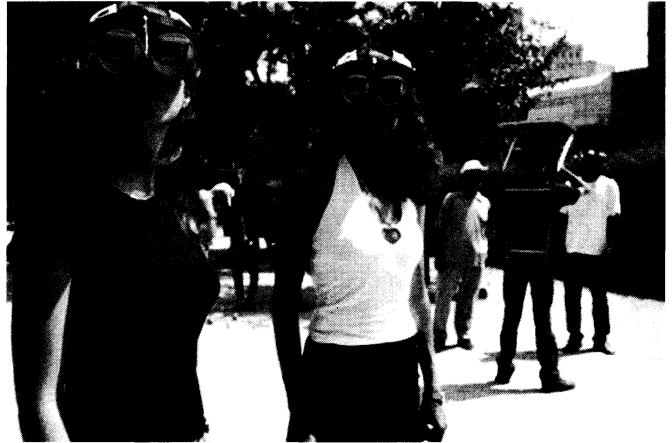
**Fig. 2** Gabriel Orozco, *My Hands Are My Heart*, 1991 (right). *Yielding Stone*, 1992 (below)

Deconstructive play is currently a major theme in contemporary fine art, but in general fine artists play with themselves. Creating game-like or playful interactivity is woefully underdeveloped in the sphere of fine art. Generally speaking despite rhetoric regarding 'art into life', 'social sculpture' or 'relational aesthetics',<sup>6</sup> fine art remains devoted to the tradition of the 'great artist' and the role of the viewer remains that of admiring the heightened sensibility and ingenuity of such artists.

When attempts are made by fine artists to involve the viewer they can appear derisory. One instance is the 'Common Wealth' exhibition at Tate Modern, 2003, in which two works by Carsten Höller and Gabriel Orozco made attempts at interactivity. Höller's work, *Frisbee House*, consisted of an igloo-like tent with holes cut into its fabric. The viewer was invited to throw Frisbees through the holes. Orozco's contribution was a four-sided table-tennis game with a water lily pond in the middle. Will the balls land on the water or on a water lily? The only remarkable feature of either of these works was that the viewer was released from the usual lap-dancer 'you can look but don't touch' regime of the art museum. What was missing was any degree of ingenuity. It was as if these two celebrated artists were unable to open up the viewer's creative process beyond the level of a three-year old. This is especially strange because Orozco has played many simple yet interesting formal games *by himself* such as making a clay heart out of his hands or creating a sculptural object by rolling a ball of clay over a grid.

Fine art is much more successful when it comes to involving the spectator's visual perception: the level of the disembodied gaze. For example Carsten Höller created an interactive installation in which the participants wore special spectacles that turned the world upside down. In another installation he used a wall-sized field of light bulbs

**Fig. 3** Carsten Höller *Inverted world*, 2001.



flashing on and off at alpha brain-wave frequency to induce a feeling of well-being in the viewer.

One can also cite the dislocations of the gaze evident in Ann Veronica Janssens's mist installations and Olafur Eliasson's colour rooms in which the viewer steps into a circular room fitted with sophisticated lighting that alters almost imperceptibly. The effect of Höller's, Janssens's and Eliasson's phenomenological installations is to create a heightened awareness of perceptual processes by immersive experiences that dislocate habitual ways of seeing.

The heightening of perception in the work of Höller, Janssens and Eliasson indicates a high point for interactivity in the domain of fine art, but one can observe that in each and every case the focus is on the disembodied gaze. There is little haptic involvement nor is there any sense of letting the viewer enter into the sphere of play that appears reserved for the privileged fine artist.

### **Game-like interactivity in new media art**

It is not difficult to find instances of new media art that combine game-like interactivity with a significant degree of aesthetic elegance. We will examine just three artists: Luc Courchesne, Bill Seaman and Nancy Burson.

Luc Courchesne's *Portrait One*, 1990, is simple and elegant. It consists of a computer screen with a mouse. The screen shows what appears to be a static portrait of a woman. However, when the viewer activates the mouse a menu appears below the image enabling the viewer to 'speak' to the woman on the screen via a series of multiple choice questions. One selects a question and the woman, now animated, answers. Remarkably, this simple interactive game creates the illusion of having a conversation with what was at first a static image. One realises that it is a game, but at the same time what appeared at first sight to be a disembodied face gains human characteristics through which the viewer experiences a surprising degree of empathy. One can compare this work with experiments in artificial intelligence such as 'Alice' ([www.alicebot.org](http://www.alicebot.org)) and the more sophisticated 'Laura'.<sup>7</sup>



**Fig. 4** Luc Courchesne, *Portrait One*, 1990. The text reads 'what are you doing here', 'who are you', and 'do I stand a chance?'

Nancy Burson also explores game-like interactive art. Her *Human Race Machine* allows the viewer to see how they would look if they were a different race (black, white, Asian, Hispanic, Indian). The viewer first coordinates their face with an edge detection map and then presses the button to see their face morphed into another race. Again this is a simple game but creates a high degree of fascination as the viewer is able to explore his or her identity beyond their current self-image. *Human Race Machine* also has a political agenda communicating the message that race is not an indicator of significant genetic distinctions between peoples. Like Courchesne's *Portrait One*, the viewer's experience of the *Human Race Machine* is very individual and quite different from the experience of old media fine art wherein the viewer explores not their own individuality, but that of another person: the privileged artist-creator.

Bill Seaman has been experimenting with interactive games for some time beginning with interactive 'recombinant poetry'. In *The Exquisite Mechanism of Shivers*, 1992, it was possible to use a mouse to construct an interactive poem by choosing a word from a list.



**Fig. 5** Bill Seaman, *From: The Exquisite Mechanism of Shivers*, 1992.

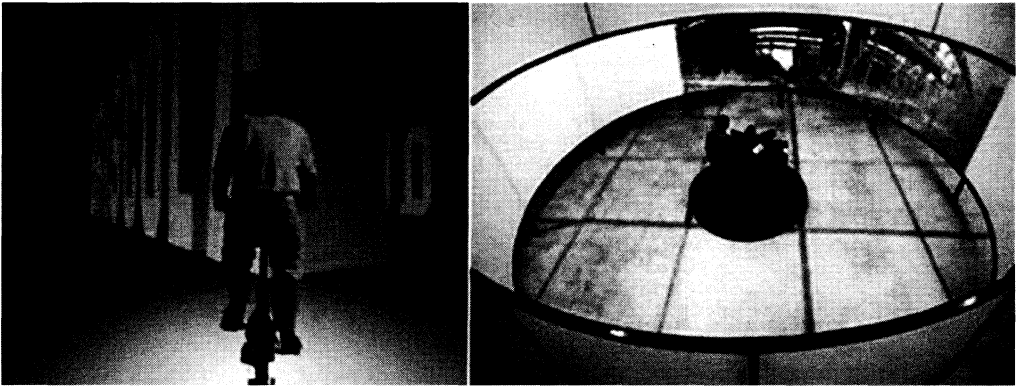


Fig. 6 Jeffrey Shaw, *Legible City*, 1989 (left), *Place: Ruhr*, 2000 (right).

The choice then appeared on the screen in the context of a short poetic phrase which was generated by the computer on the basis of a simple algorithm. In a more recent work, *The Hybrid Invention Generator*, Seaman applies similar principles to imagery. Seaman's work is significant because it brings a genuinely interactive dimension to Surrealist-like automatism. The game of the *Exquisite Corpse*, for example, was a variation on a parlour game played by the Surrealists and consisted of folding up a piece of paper and drawing on it, folding it to reveal a new blank section and passing it on to the next player, and so on. This game was related to the aesthetics of chance and it is possible to argue that the strategy of chance that binds Marcel Duchamp, Dada and Surrealism opens up possibilities in the sphere of the interactive game. This is evident when Peter Bürger describes cut-and-paste poetry and automatic writing as having 'the character of recipes':

Given the avant-gardist intention to do away with art as a sphere that is separate from life-praxis [*Lebenspraxis*] it is logical to eliminate the antithesis between producer and recipient. It is no accident that both Tzara's instructions for the making of a Dadaist poem and Breton's for the writing of automatic texts have the character of recipes. This represents not only a polemical attack on the individual creativity of the artist; the recipe is to be taken quite literally as suggesting a possible activity on the part of the recipient.<sup>8</sup>

The same can be said of Fluxus performances and Happenings of the 1960s which were informed by the concept that given a putative deconstruction of the work of art as precious object 'anyone could be an artist'. That concept never really caught on in the art market, but the theoretical framework still remains and the evidence is that the immateriality of new media art is creating a zone in which, to paraphrase Bürger, 'the recipient can become part of the creative activity'.

### Physical and embodied interactivity in new media art

The degree of physical (tactile, kinesthetic) participation in an interactive work of new media art is proportional to the degree of influence the viewer-participant can have on the work of art and to the degree of awareness the viewer can have of his or her participation. Moving one's finger on a touchpad to interact with online art is generally a fairly limited degree of interactivity. Interacting in a gallery space via web cam

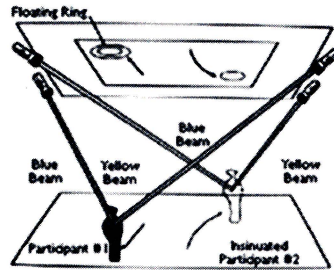
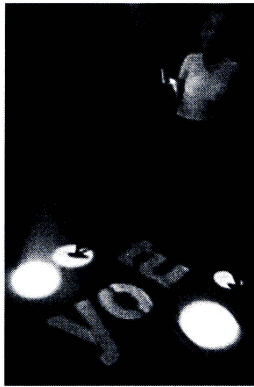


Fig. 7 Rafael Lozano-Hemmer, Trace, Fundacion Telefonica, 1995, 2000.

sensors and positional analysis creates a much more powerful physical effect. One of the most successful seminal instances of gallery-based interactive art is Jeffrey Shaw's now classic new media art work *Legible City*, 1989 (with Dirk Groeneveld). In this work one rides a fixed bicycle the speed and direction of which affects where one travels in a computer-generated city (constructed out of three-dimensional letters) projected on a large screen ahead of the rider. The principal effect of this work was one of being embodied in the 'legible city'. One has a palpable sense of physical relationship with the image on the screen to a degree that is rare when viewing traditional fine art media.

Riding a bicycle in a virtual city may not appear to be particularly profound, but it is considerably more engrossing than walking on Carl Andre's metal tiles. One could accuse *Legible City* of being a primitive instance of interactivity but that accusation merely points to the even more primitive nature of the dissolution of the boundary between viewer and art object evident in most instances of sculptural installation art at the turn of the millennium. And as was argued above, even in those instances where installation art achieves a significant degree of interactivity it is, for the most part, a heightening of the disembodied gaze. Embodied interactivity appears to be the preserve of new media.

Mark B. N. Hansen goes so far as to argue that new media art is defined by its capacity for interactive embodiment which he suggests is an evolution beyond the traditional concept of the disembodied image, whether that be painterly, photographic or cinematic.<sup>9</sup> Although he does not use this analogy, Hansen's point appears to be that new media interactivity allows the viewer to enter into the image in a manner akin to the scene in David Cronenberg's *Videodrome* (1983) in which Max Renn (James Woods) puts his head and body into a television screen thereby entering into the televisual domain. And to make his point Hansen refers to a recent interactive installation by Jeffrey Shaw, *Place: Ruhr*, 2000.

*Place: Ruhr* consists of a rotating platform in the middle of a 360° panoramic screen. A 120° image is projected onto the screen by three projectors. The image is of the landscape of the Ruhr, once the industrial heartland of Germany and now undergoing post-industrial degeneration. By manipulating a joystick the viewer can move the

120° image across the larger 360° surface. If viewers see something that interests them, they can zoom into the image. Hansen reports that because the scenes are formally 'homeothetic' ('isomorphic' might be a more accessible term) with the curved panoramic space of the viewer 'movement from physical to virtual image space is accompanied by a feeling of continuity that partially obscures the difference between physical and virtual space'.<sup>10</sup> Hansen quotes ZKM (Centre for Art and Media Technology) director Peter Weibel's observations on Shaw's recent work as 'a heightened ability to view and use the world according to one's own notions, more individually, more subjectively'.<sup>11</sup> And Hansen suggests that the physical involvement of the viewer in the viewing process makes 'technology a supplement to the body'.<sup>12</sup> In short, *Place: Ruhr* enhances the experience of embodiment experienced in Shaw's earlier work *Legible City*.

Another work that explores embodied interactivity is Rafael Lozano-Hemmer's *Trace: Telepresencing Across the World*, 1995. It is an interactive-locative work that is impressive even ten years after its initial construction, because it can interconnect the physical presences of two people who can be a world apart. And the interpersonal, or 'relational' nature of *Trace* underscores the connection between embodiment and empathy.<sup>13</sup>

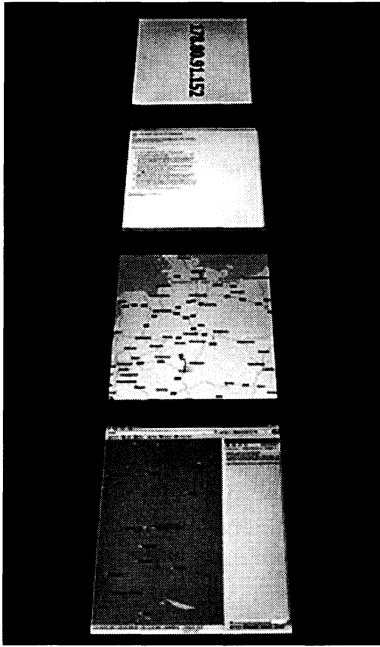
*Trace* consists of two rooms and two participants. These rooms could be on opposite ends of the globe. Each room is designed to record the movements of the local participant and to simultaneously display the movement of the remote participant. One enters a darkened room equipped with a location tracking device which will transmit to the remote room via a telephone line in real time.

The movements of the remote participant are visualised to the local participant in various ways. First, there are white and blue robotic spotlights. The blue spotlight projects the position of the local participant onto the floor and the white shows the location of the remote person. Fog is introduced into the room to enhance the effect of the moving light beams. Second, speakers surrounding the room give the local participant positional sound feedback regarding the location of the remote participant. If the remote moves to the right the sound moves to the right. If the remote person moves closer to the local person the sound gets louder. Thirdly, there are two data screens on the wall of the room that show the relative positions of the participants via dots and graphs. Finally, the entire ceiling is a screen showing an abstracted, three-dimensional, computer-generated visualisation of the relative positions of the participants. The local is represented by a disk and the remote by a circle; when the two reach the same coordinates the circles encompasses the disk. Lozano-Hemmer uses the term 'telembodyment' to describe the point at which the remote and local participants might share the same coordinates. And the entire installation is designed to explore a new dimension of telecommunication that extends beyond sound and vision to the sense of bodily presence. It is obvious that Lozano-Hemmer wants the multiple feedbacks to transcend their abstraction and result in a sense of shared physical presence.<sup>14</sup>

### **Interactivity in an expanded field: locative art**

*Trace* indicates that it is possible to expand the field of interactivity over vast distances. With this in mind we would like to shift our attention to one of the most recent developments in interactive new media art: locative art. The term 'locative art' is a





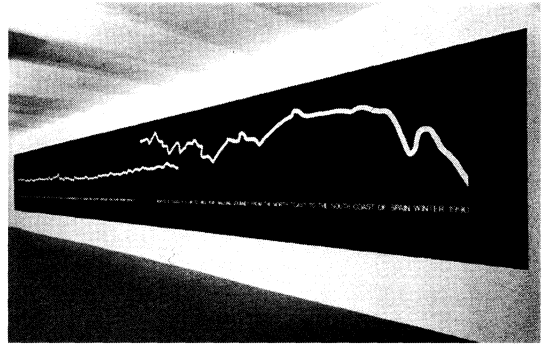
**Fig. 8** Charles Lim Yi Yong and Woo Tien Wei, *Tsunami.net*, installation at Documenta 11, 2002.

relatively new addition to new media art and its relationship to interactivity deserves some consideration. 'Locativity' is not so much a revolutionary departure as an extension of the systems we have already examined. One could for example refer to sensors that map the movements of people in a gallery space as 'locative'. The main difference appears to be that locative art uses input devices that can function over a much larger area than is evident in the work we have examined so far. These devices include the cellular phone system and wi-fi, but the most significant is the Global Positioning System (GPS) which is a truly global and pervasive sensor system.

GPS was developed as a military navigation system and remains controlled by the US Air Force. It consists of a constellation of 24 satellites constantly monitored by military base-stations. This system provides the military and civilians with accurate information about their position, speed and time anywhere in the world, whatever the weather conditions. Position can be calculated to the metre (and closer for the US military). Although locative art uses other pervasive systems such as the cellular phone networks and wi-fi none are as globally pervasive as GPS. And it is the concept of an invisible grid mapping the entire globe that seems fascinating to artists.

Another interesting feature of locative art is that it often uses the interactive data collected to create the visualisation rather than simply altering an already existing data-driven work of art. Yet this can cause problems because it is not necessarily the case that a raw representation of data will produce an aesthetically appealing visualisation. A case in point is a seminal instance of locative new media art by the Singaporean artists Tsunami.net, Charles Lim Yi Yong and Woo Tien Wei, exhibited at 'Documenta 11', Kassel, 2002.

**Fig. 9** Hamish Fulton, *Alps Horizon*, 1989; *Montes de Toledo*, 1990. Wall painting 218 x 1770 cm.



In an interview Woo Tien Wei explained that the idea was for Charles Lim Yi Yong to walk from Kassel to Kiel where the Documenta website server resides: a 400–500km journey. Lim Yi Yong carried a computer with cellular internet and GPS equipment in his backpack. This equipment allowed his movement to be tracked. The cellular internet connection for his computer allowed his movements to be tracked via the changing IP numbers allotted to his computer by the different cellular providers he passed through. The installation in Documenta 11, Kassel consists of several screens placed on the gallery floor. One screen indicates the current IP number of the traveller, another shows his current position on a large-scale map and another on a smaller-scale map. The idea is interesting, but unfortunately the visualisation aspect of this particular work was completely lost in the welter of visuality of a major art exhibition.

The lack of aesthetic dimension in the Tsunami.net installation exhibited at Documenta 11 possibly stems from being overwhelmed by the technology to the detriment of a focus on visualisation. Visualisation need not be especially complex. Land artist Hamish Fulton's extremely simple but aesthetically effective wall painting in which he depicts his journey from the north to the south coast of Spain, in 1990, with a simple white line painted on a black background, is a good example. The aesthetic impact comes from its elegant simplicity plus the fact that the painting fills an entire wall of the gallery.

Douglas Huebler's *42° Parallel Piece*, 1968, is another instance of a simple mode of visualisation that is relevant to a consideration of contemporary locative art. Huebler's text describes the project as involving '14 locations (A through N) [which] are towns exactly or approximately on the 42° parallel in the United States. Locations were marked by the exchange of certified postal receipts sent from and returned to site "A" in Truro, Massachusetts'. Huebler's fundamental idea appears to be that of transposing the abstract artistic/mathematical concept of a line into geographical terms. His delineation of a line across the middle of the United States integrates with the imaginary lines of latitude and longitude that we have projected onto our planet: lines that exist in an extraordinary space in-between the imaginary and the pragmatic. Huebler's work is significant to this discussion because it is not simply a representation, it is also interactive, in the sense of interacting with systems of information in the everyday world; in this case the postal system. It is also a visualisation because it produces a



SITE SCULPTURE PROJECT 42° PARALLEL PIECE  
 14 LOCATIONS (A THROUGH N) ARE TOWNS EXISTING EITHER EXACTLY  
 OR APPROXIMATELY ON THE 42° PARALLEL IN THE UNITED STATES.  
 LOCATIONS HAVE BEEN MARKED BY THE EXCHANGE OF CERTIFIED  
 POSTAL RECEIPTS SENT FROM AND RETURNED TO 'A' - TRURO,  
 MASSACHUSETTS. AUGUST-SEPTEMBER 1968

Fig. 10 Douglas Huebler, 42° Parallel Piece, 1968.

meaningful articulation of its interaction via its reference to the abstract lines of latitude that are so important to global commerce and defence. Huebler's work is also especially relevant to GPS art which is an extension of the immaterial yet highly practical system of longitude and latitude.

### GPS data visualisation

Huebler's use of the US postal system was ingenious but GPS provides a much greater wealth of data due to the fact that it covers the entire surface of the earth. Charles Lim Yi Yong of Tsunami.net had to carry his GPS equipment in a backpack, but today we can purchase small hand-held GPS receivers that give us precise data regarding our location virtually wherever we might be. One can use GPS for an entirely different purpose than that for which it was originally intended, in the same way that Huebler used the technology of the US Postal Service. Unfortunately Tsunami.net's Documenta 11 exhibit was not particularly impressive but fortunately more recent experiments with GPS art have discovered the beauty of the simplicity of the line evident in the work of both Huebler and Fulton; and one can also mention Richard Long, the British land artist, who has photographed many lines he has made during walks in various parts of the world.

Software has been developed that outputs the data from a GPS receiver and translates it into a line that effectively produces a 'drawing' of the journey taken by the person carrying the receiver. To make a GPS drawing one needs to connect the GPS receiver to a computer using software that can read the data. The GPS receiver sends data in a string or sentence that might look something like this:

\$GPGLL,5330.12,N,00215.31,W,134531,A<CR><LF>

First, there is a National Marine Electronics Association (NMEA) code '\$GPGLL', then the Latitude, North or South, Longitude, East or West, Time (hhmmss), Data Valid 'A', Carriage Return and Line Feed. Below is an illustration showing the kind of drawing that GPS data can lead to.

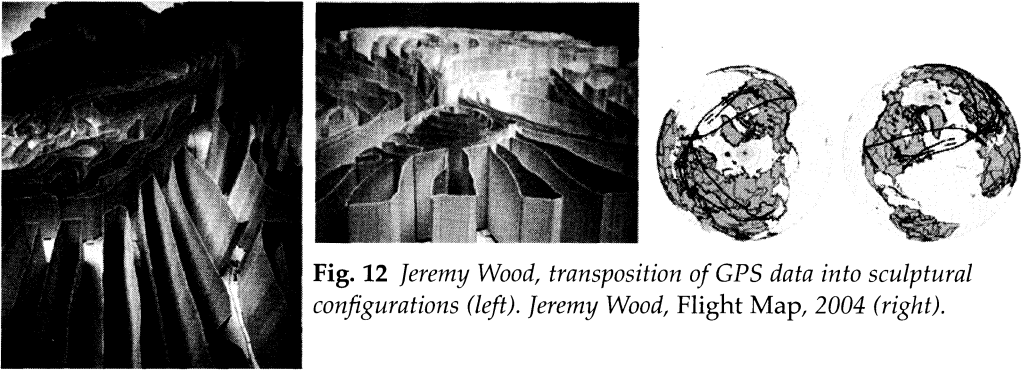
The GPS drawings shown below were made during a project carried out by Jeremy Wood that made use of Charles Jencks' landscape architecture *Landform Ueda* outside Scotland's National Gallery of Modern Art in Edinburgh. *Landform Ueda* provides a data collection zone with an area of 3,000 square metres. The aim of the work is to sense human presence within a delineated public space and use the data collected from the sensors to visualise both individual and collective presence via a representational system that could take different forms such as a printout, projection or an LCD display. In the *Landform Ueda* work participants are provided with GPS receivers prior to going for a walk. The results from the data collected are both aesthetic and informative (in the sense of mapping differences in individual journeys). One can also point to the fact that the hand-held GPS receiver enables a group interactivity thereby amplifying the displacement of attention away from the privileged individual artist-creator that is an inherent characteristic of all interactive art.

During the course of his experiments with GPS visualisation Wood has experimented with GPS sculptures and three-dimensional animated GPS drawings. This variety of possible outputs is a significant feature of data art as it points to the fact that the dataset is separate from the mode of its visualisation. In contrast, conventional modes of representation begin and end with a specific visualisation. A dataset, however, can be represented in a wide variety of ways. Indeed the separation of the dataset from its mode of representation is similar to the way in which an SQL or XML database functions. In such databases the dataset is broken down into its simplest components which are labelled and stored. These simple components can be displayed and interrelated in many different ways.

Another of Wood's projects is the production of flight maps. Wood asks the question: What would a model of the globe look like if *all* my journeys were mapped? It is an



**Fig. 11** Jeremy Wood's mapping of *Landform Ueda* designed by Charles Jencks outside Scotland's National Gallery of Modern Art in Edinburgh.



**Fig. 12** *Jeremy Wood, transposition of GPS data into sculptural configurations (left). Jeremy Wood, Flight Map, 2004 (right).*

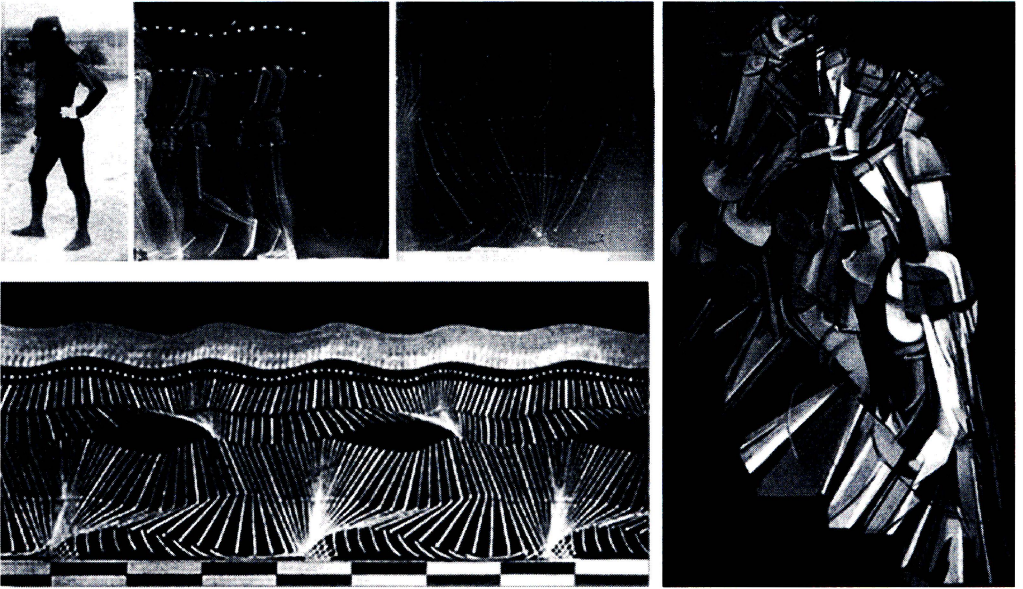
interesting proposition which reminds one of the section above on interactive games. One is reminded in particular of Nancy Burson's *Human Race Machine* which provides individuals with new perspectives on themselves. Wood's flight maps also achieve a similar effect, although the project is currently in a rudimentary aesthetic condition and looks suspiciously like the illustrations in airline magazines.

Wood's flight maps keep the visual representation simple which cannot be said for his more whimsical GPS drawings such as a frolicking cat GPS drawing made in Edmunds Park, Didcot, Oxfordshire. The bathos of Wood's *Didcot Cat* is even more disappointing than Tsunamii.net's Documenta 11 contribution. It is, however, a useful contrast to the other pieces by Wood that we have shown. From an aesthetic point of view the more abstract GPS visualisations are preferable to the attempts at representational drawing. The latter appear to stem from a conventional and literalistic interpretation of the concept of 'drawing' that reveals a worrying lack of aesthetic sophistication. More to the point, the primary purpose of the kinds of visualisation offered by GPS drawing should reflect the kinds of exploration evident in the other modes of interactive art we have explored in this essay; which is to say we should not be dealing with conventional representation but with *new ways of seeing*.

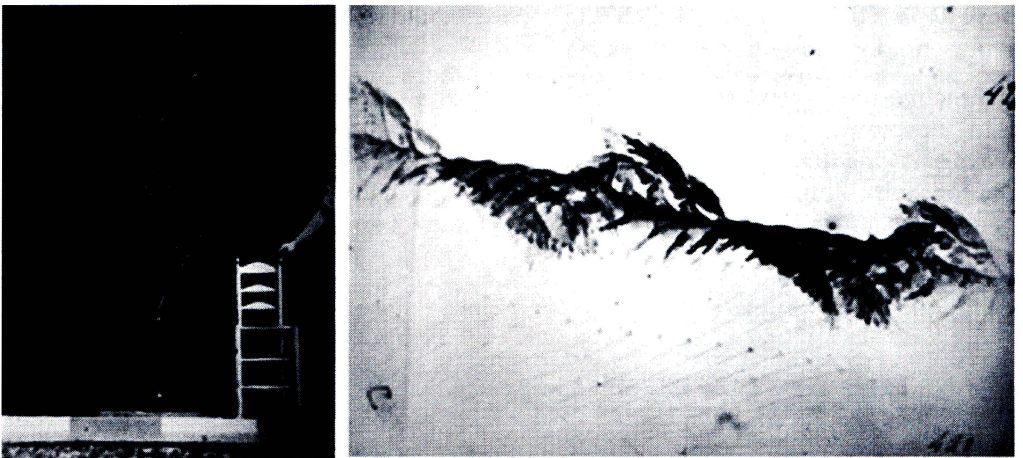
Interactive and locative art offer at the turn of the millennium another way of seeing. If it is to be explored seriously, it should have resonance with the extraordinary expansion in ways of seeing that occurred at the turn of the nineteenth and twentieth centuries when photography, film, chronophotography, x-rays and theories concerning the possibility of a fourth-dimension of space had significant impact on early modernist art.<sup>15</sup> One can



**Fig. 13** *Jeremy Wood, The Didcot Cat, GPS drawing made in Edmunds Park, Didcot, Oxfordshire.*



**Fig. 14** Etienne-Jules Marey, Chronophotographic analysis of a person walking (left). Marcel Duchamp, *Nude Descending a Staircase no. 2*, 1912 (right).



**Fig. 15** Etienne-Jules Marey, *Figure with physiologically mapped clothing stepping off a stool* (left). *The flight of a seagull*, 1886 (right).

remember, for example, that the Constructivist artist László Moholy-Nagy entitled his 1929 book *The New Vision*, and argued that an artist who could not use a camera was visually illiterate. Wood's *Didcot Cat* becomes questionable when contrasted with the power of Etienne-Jules Marey and Eadweard Muybridge's chronophotography which pioneered what we would refer to today as 'motion capture'. The fact that Marey and Muybridge's work was produced over a century ago serves to underscore the lessons that practitioners of GPS drawing still need to learn.

Marey's work, in particular, is of interest because he pioneered the physiological marking of limbs and joints that is still used today in motion capture devices. His development of a system that could capture the body moving in *space-time* enabled a new conception of the human body as a highly coordinated and complex *field of forces*. His abstracted visualisation of the human body in motion inspired Giacomo Balla to embark upon a series of Mareyesque abstract visualisations of 'speeding automobiles'. Marcel Duchamp was inspired by Marey to create his Cubo-Futurist masterwork *Nude Descending a Staircase*, 1913. Marey was first and foremost a scientist but we can see his photographs as possessing not only significant data but also a strangeness that lends them aesthetic qualities.

Marey's abstractionistic analysis of animals and the human figure in motion was a precursor for the deconstruction of classical, Euclidean, space and time evident in Analytical Cubism. The modernist 'new vision' was inspired by science, but today most fine artists know little, if anything, about science: which provides new media artists with yet another possible sphere of contribution. With regard to Marey's remarkable visualisations one can note that his ability to capture what Gilles Deleuze would refer to as the 'movement-image' provided us with a paradigm that has yet to be explored in full.<sup>16</sup> Technologies such as GPS and indeed other varieties of sensors that are able to track in space and time could well benefit from returning to the work of Marey whose vision is not so much cinematic as it is an exploration of the dynamic formalisms that exist in between static frames.

## Conclusion

New media remains a seminal field akin to the very early days of photography and film. This makes it a virtually virgin territory attractive to both artists and theorists. The concepts of interactivity as embodied gaze, games and movement-image that have been explored in this text are significant because they point to the limitations of old fine art media while simultaneously inviting a new generation of artists to explore the new frontiers offered by new media.

The turn of the nineteenth and twentieth centuries was a period of revolution in art. Fine art at the turn of the millennium reveals a situation in which 'transgression' has become 'play', which is to say games that artists play *with themselves* and which place the viewer in the role of ardent admirer. Similarly, the early twentieth century avant-garde desire to bring art into everyday life has failed to materialise. Instead we see the artistic 'transgression' of Dada and radical art of the 1960s devolved into a playful complicity with the art system. One can cite, for example, the fashion for grunge installation sculpture by Jason Rhoades, Thomas Hirschhorn, Tracey Emin and John

Bock, to name but a few. Such installations are far from transgressive due to the fact that they are transmuted into precious objects by the art system. Reiterations of the fact into life dictum evident in Nicolas Bourriaud's 'relational aesthetics' seem overblown when most fine art celebrates not only the transmutation of junk into gold but also the privileged status of the individual artist-creator.<sup>17</sup>

Against this background new media art seems to be the only sphere of artistic activity in which there is any hope of realising the goal of overcoming the elitism of fine art. The foundation of this hope lies in the inherent interactivity of new media art and its replacement of the disembodied gaze of traditional fine art with an embodied gaze and a displacement of the privileged individualism of the artist-creator by an expansion of the space of participation. One can also point to the concept of artistic *interactive* games that seem to be an especially fertile territory for aesthetic exploration. We are still only in the first years of the new millennium, and should remember that the artistic revolution in the early twentieth century took some years to arrive. Hopefully new media art will be able to realise the goal of social relevance that contemporary fine art has largely abandoned.

## Notes

1. Bürger, P. (1984), *Theory of the Avant-Garde*. Minneapolis: University of Minnesota Press, p. 53.
2. Duchamp's famous ready-made urinal sold at auction for over a million dollars. Sale details are available from [www.artprice.com](http://www.artprice.com) (subscription required, accessed 29 September 2007).
3. Bishop, C. (2005), *Installation Art: a Critical History*. London: Tate, p. 6.
4. Macel, C. (ed.) (2005), *Dionysiac – Paris Centre Pompidou*. Gelatin, John Bock, Keith Tyson, Fabrice Hyber, Kendell Geers, Jason Rhoades, Paul McCarthy, Martin Kersels, Jonathan Meese, Malachi Farrell, Richard Jackson, Christoph Büchel, Maurizio Cattelan, Thomas Hirschhorn. Exh. cat., Paris: Centre Pompidou.
5. Coulter-Smith, G. (2006), *Deconstructing Installation Art: Fine Art and Media Art, 1986–2006*, Southampton: CASIAD, an e-book available at [www.installationart.net/index.html](http://www.installationart.net/index.html); this reference is to [www.installationart.net/Chapter1Introduction/introduction02.html](http://www.installationart.net/Chapter1Introduction/introduction02.html) (4 August 2008).
6. Bourriaud, N. (2002), *Relational Aesthetics*. Dijon: Les presses du reel.
7. Daviss, B. (2005) 'Virtual fitness trainer gets pulses racing', *New Scientist*, 3 December, <http://www.newscientist.com/article/mg18825281.400.html> (29 September 2007, subscription required).
8. Bürger, P. (1984), *Theory of the Avant-Garde*, Minneapolis: University of Minnesota Press, p. 53.
9. Hansen, M. B. N., (2004), *New Philosophy for New Media*, Cambridge MA: MIT Press, p. 51.
10. Hansen, M. B. N., (2004), *New Philosophy for New Media*, Cambridge MA: MIT Press, p. 49.
11. Hansen, M. B. N., (2004), *New Philosophy for New Media*, Cambridge MA: MIT Press, p. 51.
12. Hansen, M. B. N., (2004), *New Philosophy for New Media*, Cambridge MA: MIT Press, p. 51.
13. Boudourides, M. A. (1995), 'Chaos and Critical Theory'. Conference paper at *Einstein meets Magritte*, international conference, Vrije Universiteit, Brussels, 29 May – 3 June. Online version accessed 22 Jan 2009: <http://www.math.upatras.gr/~mboudour/articles/cct.html>



14. This is perfectly possible as is evident from experiments with sonar-like guidance systems designed for blind people whereby a webcam-like apparatus scans the environment and translates the edges and brightness into varying tones and pitches. Blind users of the system report that after a period of time their brain is able to process this data so seamlessly and automatically that it is almost as if they could 'see'.
15. Henderson, L. D. (1983), *The Fourth Dimension and Non-Euclidean Geometry in Modern Art*, Princeton, N.J.: Princeton University Press.
16. Deleuze, G. (1986), *Cinema 1: The Movement-Image*, Minneapolis: University of Minnesota Press. Athlone Press.
17. Bourriaud, N. (2002), *Relational Aesthetics*. Dijon: Les presses du reel.