

# Illuminating Embodiment

## Rafael Lozano-Hemmer's Relational Architectures

### ▷ Architectural Design

#### **4dsocial: Interactive Design Environments**

Art and architecture have a strong tradition of humanism in which man and the human body are the centre and measure of all things. **Maria Fernández** describes the work of artist Rafael Lozano-Hemmer whose work transgresses and challenges these preconceptions through performance, seeking to expose the body and society's receptivity to instability, fluctuation and re-imagining.

The work of the Mexican-Canadian artist Rafael Lozano-Hemmer is concerned with creating virtual openings in architecture, the city, the body and technology. Architecture and bodies are intrinsically connected. Architecture is built for and experienced by bodies, and in the narratives of European classical architecture, architectural theorists from Vitruvius to Rudolf Wittkower have reiterated for centuries that the two are inseparably linked.<sup>1</sup>

Lozano-Hemmer's work challenges the supposition that buildings control bodies. This current of thought is exemplified by Jeremy Bentham's notion of the panopticon (1787) and is also evident in utopian projections of social engineering through Modern architectural design.<sup>2</sup> Today, powerful machine vision systems and tracking technologies supplement the regulating power of architecture. Surveillance systems are now embedded in all realms of our daily life, private and public, from door security systems to stores, banks, highways and city streets. Technologies are also playing an increasing role in the alteration and regulation of bodies in a variety of ways, from implants and telesurgery to identification by retinal scan.

Historically, societies and cities have been metaphorically conceived as bodies. For example, in his book *Policraticus* (c. 1160), Bishop John of Salisbury described the commonwealth, or society, as a body. This concept gained impetus during the Enlightenment and survived throughout the 20th century in disciplines such as sociobiology.<sup>3</sup> Multiple architectural theorists and practitioners including Vitruvius, Francesco di Giorgio (1439–1502) and Le Corbusier similarly theorised cities as bodies,<sup>4</sup> thus bodies, buildings, cities and technologies are conceptually and functionally interconnected. In his relational architectures, Lozano-Hemmer exposes the instability of these entities/concepts. Instability implies each entity's receptivity to alteration. In fact, Lozano-Hemmer declares that he is 'interested in the body as a performance, a process of becoming, of change, and less interested in physiognomy, anatomy, forensics and physical ergonomics'.<sup>5</sup>

Various thinkers from the 3rd Earl of Shaftesbury in 18th-century Britain to Mikhail Bakhtin in 20th-century Russia described bodies as being in the process of becoming monstrous and threatening to the social order.<sup>6</sup> Like Judith Butler's 'performative subversions', which are acts that can undo or at least unsettle the normative inscriptions of gender upon bodies, Lozano-Hemmer invites the spectator performatively to imagine and construct alternative bodies – physical, architectural and urban. He comments: 'I have a cursory interest in architecture when it involves utilitarian issues or permanence, symbolism or style. But if architecture is understood more widely as comprising the architecture of social relations, of surveillance, of fleeting exceptions, then count me in.'<sup>7</sup>

In contrast to art in traditional media that privileges visibility, interactive art engages the user's body to varying degrees in the instantiation (not necessarily the creation) of the work. In Lozano-Hemmer's relational architectures the user's body activates hyperlinks to visual and auditory events predetermined by the artist. The participant's physical involvement with the work asserts his or her agency and opens the potential for a technologically compatible form of biopolitics. The artist's use of a variety of technologies including sophisticated robotically controlled projectors, widely accessible computer systems, mobile phones and radios as well as custom-made software suggests that technology can be deployed creatively at all levels.

In 1994, Lozano-Hemmer coined the term 'relational architecture' as the technological actualisation of buildings and the urban environment with alien memory. He aimed to transform the dominant narratives of a specific building or urban setting by superimposing audiovisual elements to affect it, effect it and recontextualise it.<sup>8</sup> He later explained that his relational architectures were 'anti-monuments for public dissimulation' (2002).<sup>9</sup> Such definitions simultaneously erode understandings of architecture as solid and stable, and of virtuality as independent from lived existence.

Traditionally, scholars have read buildings and monuments as material evidence for history. For the architectural historian Sir Nikolaus Pevsner, for example, buildings embodied the spirit of an age.<sup>10</sup> In the early 1990s many artists and theorists discussed virtuality as a digitally facilitated, purely cerebral state independent of the vicissitudes of the body. In William Gibson's novels, humans live partially in a digital domain.<sup>11</sup> And in his book *Mind Children* American roboticist Hans Moravec speculates that in the future people will no longer need bodies as human consciousness will be fully transferred to digital realms.<sup>12</sup> In recent theorisations by Elizabeth Grosz and Brian Massumi, the virtual, rather than belonging to a specific medium, is the realm of possibility, inseparable from embodiment.<sup>13</sup>

Distrustful of the view that all life can be reduced to simulation, Lozano-Hemmer builds anti-monuments for dissimulation. From 1997 to 2006 he built 10 works of relational architecture beginning with *Displaced Emperors* and ending with *under scan*. The artist sometimes recognises his installation *The Trace, Remote Insinuated Presence*, presented at the international art fair ARCO in Spain in 1995, as his first example of relational architecture, although he did not entitle it as such.

In *Displaced Emperors, Relational Architecture 2*, presented at *Ars Electronica* in 1997, the Habsburg castle in Linz became both figure and ground for seemingly alien historical encounters. The piece provided links between two apparently unrelated historical events that connect Mexico and Austria:

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**The Trace, Remote Insinuated Presence, Madrid, Spain, 1995**

Two participants in different locations share the same telematic space. In each location light beams and graphics on the ceiling of the room indicate the position of the remote participant.

the Mexican empire of Maximilian of Habsburg (1864–67) and a feather headdress believed to have belonged to the Aztec ruler Montezuma II, and currently part of the collection of the ethnological museum in Vienna.<sup>14</sup> A participant standing in a small plaza in front of one of the castle gates interacted with the building by pointing at it with his or her hand, and data from two wireless 3-D trackers placed on one arm and hand of the participant indicated the direction of his or her arm movement in real time.<sup>15</sup> An animated projection of a human hand appeared wherever the individual carrying the tracker pointed. The images were projected on the building using robotic motion-controlled projectors. When the participant moved his or her arm, the projected hand also moved. As the virtual hand 'caressed' the facade of the building, it wiped away the exterior wall revealing interior rooms matched to the exterior so as to appear to be inside the Linz castle.

The virtual hand also activated music sequences, which seemed to emanate from the rooms in view. The superimposed images were in fact interiors at Chapultepec castle, the main residence of Maximilian and his wife Carlota during the Habsburg rule in Mexico. In addition, for 10 schillings, other participants could interrupt the interaction of the person with the tracker by pressing the Montezuma button located in a makeshift souvenir shop in front of the castle. Pressing the button elicited an enormous image of Montezuma's headdress accompanied by a Mexican music track.

A searchlight with the cultural property symbol, a sign displayed in buildings and monuments recognised as cultural property by the international treaty of The Hague, followed the participant who had the tracker.

Through these witty layerings the work encourages the viewer to explore the interdependence of European and Mexican history, even at the level of a shared cultural heritage. Despite repeated attempts by the Mexican government to have Montezuma's headdress returned to Mexico, the object remains in Austria as part of the country's cultural treasures. Similarly, in Mexico the Habsburg's castle, transformed into a museum, is considered a national monument. In *Displaced Emperors*, even the body of the participant becomes vulnerable to appropriation as it is tracked by the cultural property symbol.

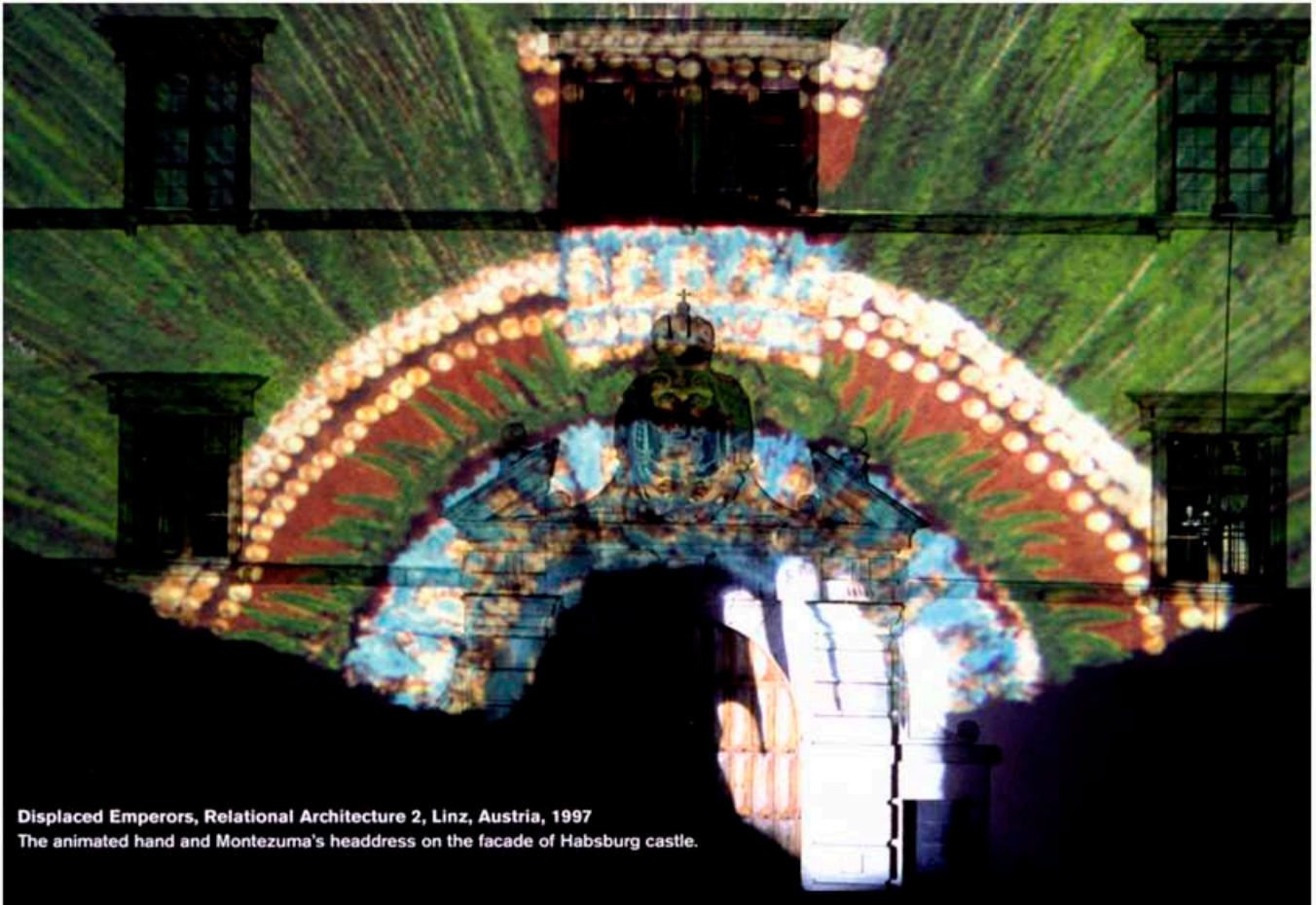
In the opinion of philosopher Elizabeth Grosz, the outside is 'the place that one can never occupy, for it is always other, different at a distance from where one is'. In her view, the outside of architecture may be technologies, bodies, fantasies, politics and economics that it plays on but does not direct or control.<sup>16</sup> *Displaced Emperors* literally and figuratively brings in elements from the outside – projections, texts, music and participants – that transform the building. These elements provide pleasurable sensual experiences for the participants and create surprising associations between distant geographical and historical settings, stimulating the user to meditate on other buildings, other histories, and other ways of cultural commemoration.

Modern cities are predicated on the erosion of public space and the proliferation of spectacular media. Baron Haussmann's modernisation of Paris in the 19th century and the later city plans of Le Corbusier and CIAM favoured commerce and production over socially oriented activities. In the mid-20th century in North American cities, commercial spaces such as malls gradually replaced traditional public squares, contributing to the disappearance of public space. The dissemination of these models throughout the globe transformed the world's cities to greater or lesser extents.

As Gilles Deleuze recognised, and Paul Virilio tirelessly stresses, from the Second World War industrialised societies shifted from disciplinary societies where control was exercised in determinate spaces, to societies of control where power is invisible and control is both technologically facilitated and predicated on the operations of markets.<sup>17</sup> In these societies surveillance and regulation of all space, especially commercial space, is paramount. *Are We There Yet?* a nomadic performance by the American tactical art collective Critical Art Ensemble presented throughout Florida in 1992 poignantly illustrated this state of affairs. A performer played with toy cars in non-obstructive locations at selected shopping malls and public places such as freeway rest stops. Invariably, the police suppressed the activity.

In recent years, architecture in many cities across the globe appears dematerialised by the influx of large screens within central urban environments. Building facades exhibit constantly changing imagery producing the impression of instability. Like earlier light and neon signs, one of the major purposes of city screens is advertisement. Occasionally screens are used for live transmission of sports and cultural events, which as the BBC's Big Screen in Birmingham demonstrates creates a collective experience for a heterogeneous public. Although architects, artists and hackers have devised creative solutions for interactive building facades, the selection of visual content is tightly regulated and large screens are still too pricey for most individual artists.

In his work *Body Movies: Relational Architecture 6* (2001), Lozano-Hemmer challenged this passive spectatorship of the mediated city with projection. Although the use of projections is not new, what set this work apart from previous interventions by other artists was not only the technology employed, but also ensuing forms of public interaction. The artist partially anticipated the effects of *Body Movies* because of audience responses to his previous work, *Re:Positioning Fear, Relational Architecture 3* presented at the Film and Architektur Biennale in Graz, Austria, in 1997. Here Lozano-Hemmer projected the participants' shadows on the exterior walls of the Landeszeughaus, originally one of Europe's largest military arsenals, to metaphorically connote fear. To his surprise, rather than being intimidated, participants often played with their shadows. This unexpected behaviour encouraged the artist to further explore shadows as expressive elements.



**Displaced Emperors, Relational Architecture 2, Linz, Austria, 1997**  
The animated hand and Montezuma's headdress on the facade of Habsburg castle.

The projected hand moved across the facade of the Habsburg castle in Linz revealing interior spaces at the Habsburg castle in Mexico.





**Body Movies: Relational Architecture 6 Rotterdam, the Netherlands, 2001**  
Portraits on the facade of the Pathé cinema and public interaction in the plaza.



Shadows of participants and passer-by on the cinema facade.



**Re:Positioning Fear, Relational Architecture 3, Graz, Austria, 1997**  
The shadow of the participant is amplified on the facade of the Landeszeughaus.

In *Body Movies*, a thousand portraits taken in the streets of Montreal, Rotterdam and Mexico City were projected on the facade of the Pathé cinema in Rotterdam where the work was first presented. Three networked computers controlled the installation: a camera server, video tracker and a robotic controller cued by MIDI signals. The portraits were muted by two xenon light sources located at ground level. Passers-by saw their shadows projected on the facade. The portraits only became visible inside a shadow between 2 and 25 metres (6 and 82 feet) high, depending on how far people were from the light sources. Participants could match or embody a portrait by walking around the square to adjust the size of their silhouette. When shadows matched all the portraits a computer selected a new set. A video projection on the square displayed the tracking interface.

Most people's attention focused less on the portraits than on their shadows. Participants with large shadows could overpower, threaten or play with small shadows; those with small shadows could interact with each other, challenge or 'tickle' the larger silhouettes. Spontaneous skits were generated among strangers and a carnivalesque atmosphere reigned in the plaza for the duration of the piece. The work demonstrated that even societies of control are capable of playful, if ephemeral, engagements.

As Lozano-Hemmer rightfully cautions, there is no guarantee that a work will function in the same way everywhere. The artist explains that when *Body Movies* was exhibited in Lisbon, 'I thought of the stereotypical "Latino" who loves to be out in the streets, partying and hugging affectionately so I expected a lot of this type of interaction with the piece. However what we saw was people trying their best not to overlap with other people's shadows. In contrast, when we presented the piece in England, where I had thought we would see considerable modesty and moderation, people got drunk, took off their clothes and acted out a variety of orgiastic scenes.'<sup>18</sup> In Rotterdam, neighbourhood residents regarded the piece as a wonderful revitalisation of the plaza as it allowed people who did not know each other to meet and, better yet, to play with each other, 'like children'.<sup>19</sup>

Cultural theorists Elizabeth Grosz and Brian Massumi conceptualise the body as a two-dimensional topological figure, a membrane open to the outside.<sup>20</sup> In Massumi's opinion this means that we do not live in Euclidean space, but in between dimensions.<sup>21</sup> Most people, however, still think of their bodies as stable and independent entities. Lozano-Hemmer's work perversely 'opens' the body of the participant to beings and events outside of it using the same logic of technologically facilitated relationality as in his relational architecture pieces. The body's shadow becomes the medium of contagion. In Lozano-Hemmer's view, the shadow functions as a disembodied body part, inseparable from the body but not of it.<sup>22</sup> In *Body Movies*, the participant could choose to embody the portrait of a stranger. Because of the two-dimensionality and immobility of the portraits, interaction with them was limited.



**Body Movies: Relational Architecture 6, Hong Kong, China, 2006**  
Projections and public interaction on the facade of the Hong Kong Museum of Art.



under scan, Relational Architecture 11, Nottingham, UK, 2006  
A pedestrian elicits a video portrait with his shadow.



under scan, Relational Architecture 11, Leicester, UK, 2006  
The work was achieved with the assistance of a large group of contributors including ArtReach production and Stage Right staging.

By contrast, in *under scan*, Relational Architecture 11 (2005–06), commissioned by the East Midlands Development Agency in the UK, a set of portraits became the principal focus for interaction. Thousands of 'video portraits' taken in Derby, Leicester, Lincoln, Northampton and Nottingham, of ordinary people chosen at random in the street, were projected on to the ground of the main squares and pedestrian thoroughfares of these cities with the permission of the individuals involved.

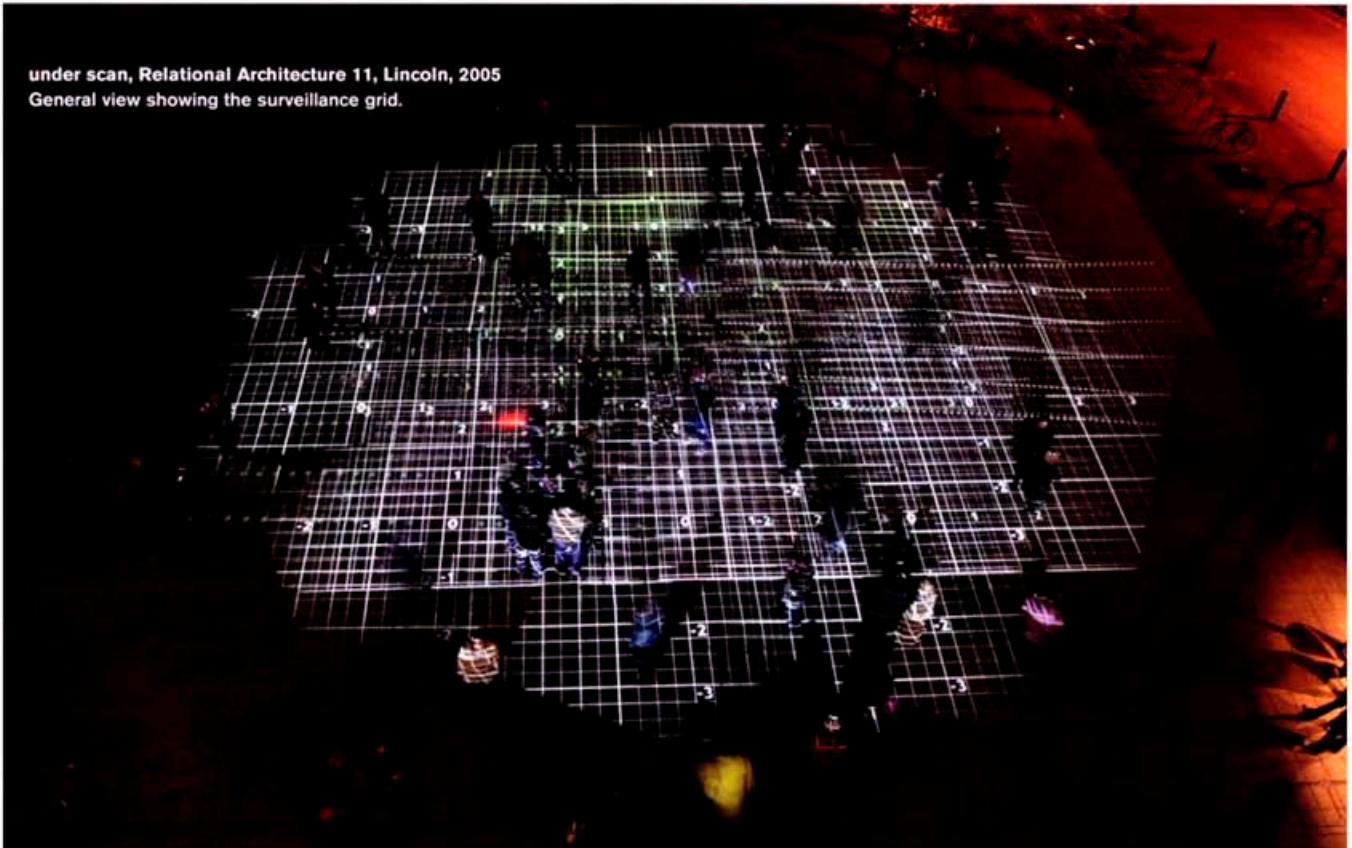
A tracking system predicted the future position of a pedestrian according to his or her trajectory. As in *Body Movies*, the portraits were washed out by a powerful light projection. As people walked, their projected shadows revealed the video portraits. This time, the individual inside the shadow slowly turned to look at the spectator and then engaged in various behaviours. Some 'portraits' slept, others danced, mimicked or threatened the viewers. The interaction ended when the shadow moved away from the portrait. Every seven minutes, the tracking mechanism of the piece was revealed by a projection of the surveillance matrix on the floor. Here the shadow, and by implication the body, of the participant hosts another body – the body of a stranger. This goes beyond the realm of hospitality: it is an invasion of the self. The work encourages the participant to imagine what it might be like to be that other. Yet the guest eventually leaves and the individual's shadow returns to its familiar shape. Unaccustomed to such an intimate

interaction with strangers, many participants reported having preferred watching the light matrix to interacting with the portraits.<sup>23</sup> As is the case with all of Lozano-Hemmer's works, this piece was achieved with a large group of collaborators and assistants.

In the 1960s sociologist Henri Lefevre argued against previous understandings of space as either a mathematical or a linguistic concept. For him, social activities constructed and gave meaning to space.<sup>24</sup> Lefevre's teachings were fundamental for the Situationists and for later tactical performances by artists' collectives such as Critical Art Ensemble, RTMARK and the Institute for Applied Autonomy. Both before and since Lefevre's work became known, numerous writers and artists have attributed to specific technologies the generation of particular spaces of interaction, for example radiophonic and digital spaces. Brian Massumi currently argues that the body in movement produces space. Consequently, space is coeval with, not anterior to, the body.<sup>25</sup> Although these theorisations differ in focus and method, all conceptualise space as active and not as an inert receptacle for social activity. Lozano-Hemmer's work is informed by histories of art, science, technology and diverse philosophical currents. Because of its conceptual complexity it cannot be described as an illustration of any specific school or theory, yet consistently it reveals 'the fullness of space' in relation to both the body and technology.

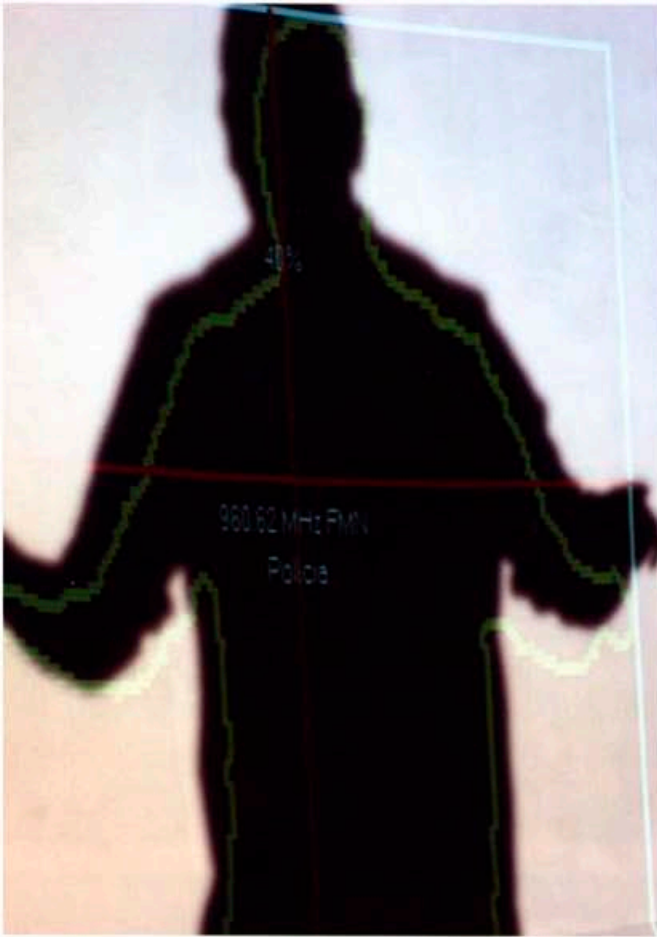


under scan, Relational Architecture 11, Lincoln, UK, 2005  
General view.



under scan, Relational Architecture 11, Lincoln, 2005  
General view showing the surveillance grid.





**Frequency and Volume, Relational Architecture 9, Laboratorio de Arte Alameda, Mexico City, 2003**  
By positioning his shadow on the wall of the exhibition space, a participant makes communications from a police radio audible to the public in the gallery.

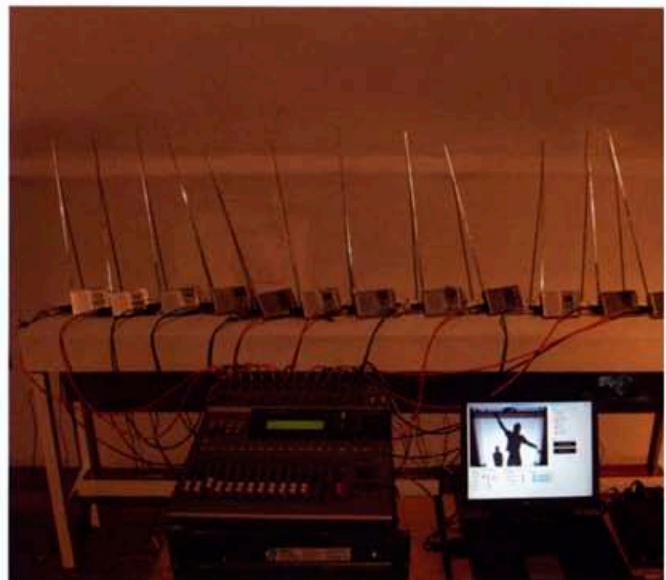
This interpretation is exemplified by *Frequency and Volume*, first exhibited at the Laboratorio de Arte Alameda in Mexico City in 2003. Participants scan the radio spectrum of the city with their bodies, and the shadows of the participants are projected on a large interior wall. The location of each shadow, as detected by a video tracking system, specifies a frequency (between 150 kHz to 1.5 GHz) on one of several radio wavebands. A computer system coordinates the tuning of radio receivers for various bands, including air-traffic control, shortwave radio, mobile phones, police, taxi dispatch and personal pagers, while the size of the shadow determines the volume of the specific channel. The result is an unpredictable sound environment controlled by the visitor's movements.

Functioning metaphorically as a moving antenna, the visitor's body elicits normally imperceptible phenomena from its surrounding space. Cultural theorist Mark Hansen maintains that all digital art engages the body of the participant to make digitally encoded information sensually apprehensible.<sup>26</sup> Interactive digital art requires the bodily

participation of the viewer in order to manifest and behave, but the artist's design is what allows him or her to discern the complex cultural signification of these phenomena. The richness of this particular piece of Lozano-Hemmer's is not just that radio frequencies become audible, but that their perception by participants and viewers reveals to them the charged contestation of our aural environments. It makes it clear that radio signals may be captured and surveyed not only by the user, but also by other parties, and one interpretation that can be made of the work is that it suggests our voluntary or involuntary coexistence with alien presences.

Most of the work Lozano-Hemmer has produced and installed in a number of global locations from Mexico City to Sydney during his 15 years as a practising artist employs tracking technologies. Consistently he reveals the works' surveillance mechanisms either by using plasma screens that display the tracking matrix with an overlay of data showing the position of the users in the installation space (*Body Movies*), or by projecting the surveillance matrix on the floor (*under scan*). The works watch the viewer and simultaneously reveal their technological apparatus of sight. These behaviours stimulate meditations and interventions from the user that could potentially transcend the specific contexts of the artwork.

By admitting elements extraneous to their own physical constitution Lozano-Hemmer's relational architectures render architecture, the city, the body, space and technology vulnerable to the outside. The performativity of the participant as well as of the technology ensures that both play a part in their own remaking. The users of his pieces become more aware of their surroundings, of their own physicality, affective complexity and perhaps momentarily glimpse at their possible complicities with the machines. ▢



Radios and computer system showing the position of participants.



under scan, Relational Architecture 11, Leicester, 2006  
Projection of the surveillance matrix.

#### Notes

1. See George Dodds and Robert Tavernor (eds), *Body and Building: Essays on the Changing Relation of Body and Architecture*, MIT Press (Cambridge, MA), 2002.
2. Miran Bozovic (ed), *The Panopticum Writings*, Verso (London), 1995.
3. Richard Sennett, *Flesh and Stone: The Body in Western Civilization*, Norton (New York), 1996, pp 23–4 and 255–70. Joseph Rykwert, *The Dancing Column: On Order in Architecture*, MIT Press (Cambridge, MA), 1996, p 38.
4. Rykwert, op cit, pp 63–5; Sennett, op cit, p 108; David Pinder, *Visions of the City: Utopianism, Power and Politics in Twentieth-Century Urbanism*, Routledge (New York), 2005, pp 100–06.
5. Rafael Lozano-Hemmer and David Hill (eds), *under scan: Rafael Lozano-Hemmer*, draft of forthcoming publication, courtesy of the artist, p 34.
6. Anthony Ashley Cooper, 3rd Earl of Shaftesbury, *Characteristics of Men, Manners, Opinions, Times*, J Purser (London), 1732. 3 vols II, ii 136. Mikhail Bakhtin, *Rabelais and His World*, trans Helene Iswolsky, MIT Press (Cambridge, MA), 1968, pp 316–18.
7. Lozano-Hemmer and Hill, op cit, p 35. Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity*, Routledge (New York), 1989, pp 128ff.
8. Rafael Lozano-Hemmer, 'Relational Architecture, General Concept' *Nettime*, 30 January 1998. At that time, *Nettime* was a closed, moderated electronic mailing list. Archives are now at [www.nettime.org](http://www.nettime.org).
9. Rafael Lozano-Hemmer 'Subsculptures': A conversation between José Luis Barrios and Rafael Lozano-Hemmer, catalogue of the exhibition 'Subsculptures', Galerie Guy Bärtschi, Geneva, 5 November–14 January 2006, pp 15, 18.
10. See Sir Nikolaus Pevsner, *An Outline of European Architecture*, Charles Scribner's Sons (New York), 1948, and *Pioneers of Modern Design*, Penguin (New York), 1960.
11. William Gibson, *Neuromancer*, Ace Science Fiction Books (New York), 1984, and *Count Zero*, Grafton (London), 1987.
12. Hans Moravec, *Mind Children: The Future of Robot and Human Intelligence*, Harvard University Press (Cambridge, MA), 1988.
13. Elizabeth A Grosz, *Architecture from the Outside: Essays on Virtual and Real Space*, MIT Press (Cambridge, MA), 2001, p 12; Brian Massumi, *Parables for the Virtual: Movement, Affect, Sensation*, Duke University Press (Durham, NC), 2002, p 30.
14. Although there is no evidence that this headdress belonged to Montezuma, it has special significance for Mexicans as a pre-Hispanic symbol of political and religious power.
15. The tracker (Gesture and Media System GAMS) and most of the software used in this piece were created and developed by Will Bauer and Rafael Lozano-Hemmer.
16. Grosz, op cit, p xiv.
17. Gilles Deleuze, 'Postscript on the Societies of Control', *October*, 59, Winter 1992, pp 3–7.
18. Lozano-Hemmer, *Subsculptures*, p 16.
19. Amsterdam resident, *Body Movies: Relational Architecture 6*, videotape produced by Rafael Lozano-Hemmer 2001, courtesy of the artist.
20. Elizabeth Grosz, *Volatile Bodies: Toward a Corporeal Feminism*, Allen & Unwin (St Leonards, Australia), 1994, pp 15–19, 23. Massumi, op cit, p 202.
21. Massumi, op cit, pp 178, 180.
22. Rafael Lozano-Hemmer, *Re:Positioning Fear, Relational Architecture 3* (<http://rhizome.org/artbase/2398/fear/>).
23. Lozano-Hemmer and Hill, op cit, p. 31.
24. Henri Lefevre, *The Production of Space*, trans Donald Nicholson-Smith, Blackwell Publishers (Oxford, UK), 1991.
25. Massumi, op cit, pp 178, 180.
26. Mark Hansen, *New Philosophy for New Media*, MIT Press (Cambridge, MA), 2004, pp 12, 52, 60.

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