interactive art and embodiment

This 'relational architecture' – to borrow a phrase from interactive artist Rafael Lozano-Hemmer (Chapter 6) – is both defined and perceived invisibly, through a history of sounds and movements that take on a density in their shared creation and experience. We are invited into a virtual and immersive, but imageless, 3D tracking system to explore the relationship between the creation of sound, the production of space, and the visualization of the two. We see it, in our minds. Here perception and visualization are one and the same, and speak across all the senses, despite that there is nothing to actually *see*. Our interactive looking and doing make past, present, and future movements and sounds affective and substantial. Vision is part of sensation as a whole.

Interactive art not only engages a performed embodiment, but intervenes in its implicit and indeterminate processes. The implicit body in interactive art situations, staged via technologized rig-events, is complexified, confused, and suspended. In fact, interactive art stages a body whose inter-actions are once removed from a situation, and brought to a higher power: it creates a semblance of a situation. According to Char Davies, such works 'temporarily deautomate habitual perception and facilitate a "seeing freshly"' (Hansen, 2006: 111). Interactive artist Rafael Lozano-Hemmer claims that the motivation is a 'modification of existing behavior,' to 'create a situation where... the participants relate in new, "alien" ways' (Lozano-Hemmer, 2001b). By setting the stage, interactive artists create productive tensions between the per-formed and the pre-formed, shifting our experiences of 'body,' and having us practice how bodies might become otherwise.

In the work of Rafael Lozano-Hemmer and Norah Zuniga Shaw, movement and architecture, body and ground, virtual and actual, are conceptually sensed. These two artists were chosen not only because of the flesh-spaces they introduce, but also because they answer some of the more critical commentary on interactive art visited earlier the book. Brian Massumi has cited Lozano-Hemmer's relational architectures as successfully 'staging … aesthetic events that speculate on life, emanating a lived quality that might resonate elsewhere, to unpredictable affect and effect' (Massumi, 2007: 90). And Zuniga Shaw's *Synchronous Objects, reproduced* premiered in productive dialogue with Erin Manning at the International Symposium on Electronic Art (ISEA) 2010 in Germany. It re-moves, re-mediates, re-thinks, and re-feels dance and the dancing ground in William Forsythe's choreography as a multichannel, multimedia, and interactive installation. Both artists stage a body that is per-formed and implicated with space.

Relational Architectures: Rafael Lozano-Hemmer

Rafael Lozano-Hemmer is a Canadian-Mexican artist who develops large-scale, public, interactive installations that attempt to 'transform urban spaces and create connective environments' (Lozano-Hemmer, 2003). In the artist's own words, 'Using robotics, projections, sound, internet and cell-phone links, sensors and other devices, his installations aim to provide "temporary antimonuments for alien agency"' (Lozano-Hemmer, 2006). Here, the adjective 'temporary' refers to the ephemeral nature of his technological and performative installations; and Lozano-Hemmer uses the term 'antimonument' because, while the works' scale is often monumental, the installations *are* an

event, rather than a monument that commemorates one. Interactive art, he says, is not time-based – does not have a predefined start and end – but event-based.

Lozano-Hemmer explains that when he uses the word 'alien,' he means something:

> that's foreign, that's non-contextual, that comes from a disparate plane of experience. Many times I use the word 'alien' to replace the word 'new' as an acknowledgement of the impossibility of originality. When I work in a public space, I don't try to address the 'essential' qualities of the site, as site-specific installations do; rather, I empha-size artificial connections that may emerge from people interacting with alien memories. (Sullivan and Lozano-Hemmer, 2002)

So when Lozano-Hemmer uses the phrase 'alien agency,' it should be read to mean that we still have agency, the ability to affect and feel affect, but are placed in a citation without context, in a re-situated ac-tivity that is out of the ordinary and out of place. Participants move–think–feel as foreign and potentialized bodies and spaces, as insides and outsides, as intensified and incipient action. In other words, Lozano-Hemmer aims to suspend and intervene in embodiment and place-making.

Dubbing one of his ongoing series of works 'relational architec-tures,' Lozano-Hemmer claims to focus on the relationships that 'emerge from the artificial situation' of his site-conditioned installa-tions (Sullivan and Lozano-Hemmer, 2002). Relational architecture sets out to transform the narratives of specific buildings by adding and / or subtracting audiovisual elements and de- / re-contextualizing them via audience participation (for example, through hyperlinked and projected images to other times and spaces). The 'alien memo-ries' in these artificial situations may include other buildings, peoples, and histories, which are conveyed through the political or aesthetic circumstances in the images. The motivation behind the special ef-fects and plasticity of the work is a situation where 'the building, the urban context and the participants relate in new, "alien" ways' (Loza-no-Hemmer, 2001b).

For Lozano-Hemmer, a given intervention succeeds when the work 'interrupts and points to our standard action and reaction circuits, amplifies and potentially changes how we move and relate in public space.' Central to his practice is the uncertainty of the outcome. While there can be a range of 'causal, chaotic, telepresent, predetermined, or emergent behaviours programmed' into his software (Lozano-Hemmer, 2001b), each instantiation provokes and highlights interactions and relations between bodies and space. Emphasis is placed on architecture and flesh as per-formed through their reciprocal relation.

One excellent example of a relational architecture is Lozano-Hemmer's award-winning work circa 2001, *Body Movies* (Figure 24). Here he projects an archive of thousands of photographs, one by one, onto large buildings around a square. Each image in this collection was taken on the streets of cities all over the world, and they are shown using powerful, robotically-controlled data projectors from above. From the centre of the square below, huge floodlights wash out these images. The photographs can only be seen when passersby on the square block out the lights and, with their shadows, reveal the overhead projections underneath them. The shadows range in size from 2 to 25 meters, depending on a visitor's distance from the light, and they are tracked in real-time with Lozano-Hemmer's custom software; if the participants on the 'live' square align their shadows in such a way as to reveal all the bodies in the image beneath, the program triggers the next image in the sequence.

All of us have played with shadows – particularly our own – and *Body Movies* relies on the sophisticated vocabularies we have developed with them, since childhood. But while interactors immediately understand this interface, the experience and practice of performing their shadows is new, 'alien,' because of how the sheer size of their shadows changes the architecture, the images, and the atmosphere around them. The revelation of other bodies and spaces in the images actively unveiled from beneath these shadows – a play on presence that Lozano-Hemmer ironically calls 'tele-absence' – and all the other bodies working together on the square add layers of complexity to the interaction. Viewers can reveal all, part, or parts of the artist's

photographs of people and places, bodies and spaces, from around the world, and they often try to tell a physical story by playing around the image's contents, engaging shadows across each other and bodies in the image, and / or triggering the next photo.

With regards to how participants physically interact with *Body Movies*, Lozano-Hemmer takes into account the large field between the lights and building, begging for players to make quirky two-dimensional movies out of, and projected onto, three-dimensional space. As evidenced in the included images, the artist's often dancing and collaborating participants become active agents in an unfolding and enfolding narrative of bodies and space, whose flesh – depending on where they individually move – might collectively span several stories high, remain close to their actual size, and everything in between. Together, they create complex shapes, animations, and architectures through experimental and repetitive movements.

Would-be static viewers run back and forth between the buildings and lights, shifting their individual sizes relative to other bodies, the architecture, and the photographs of the other architectures and bodies that they are revealing in Lozano-Hemmer's database of images. They use these tele-absent and projected forms in relation to each other, to the constructions around the square, and to the partially broadcast images in order to perform. I have watched participants use shadows and images to shadowbox a giant, swallow a dwarf, smash a building, or carry a friend or foe to safety. They move between intimate and exaggerated flows, hand shadow-puppets and sweeping and running formations. They produce animated rabbits and dogs, pour drinks from on high and eat arms of others down low, ride bicycles or run or skateboard. They pull and push each other and across each other and across times and spaces – and all across the surface of a large building, rallying back and forth in size as they move toward or away from the light. The more creative performers play out complex scenes in the previously photographed international cities, their shadows enabling them to bicycle through Madrid, use real-world umbrellas to protect virtual Italians from the rain, or create multi-armed beasts that grow and shrink as they scale building walls or invade foreign lands. They can corporeally and incorporeally align themselves with

Figure 24.   Rafael Lozano-Hemmer | *Body Movies, Relational Architecture 6*, 2001 | Four 7kW Xenon projectors with robotic rollers, 1,200 Duraclear transparencies, computerized tracking system, plasma screen and mirrors. Dimensions variable | see endnote for full image credits.

strangers and friends alike, with others present and absent, in the plural singularity of their communally shared space.

Body Movies invites us to rehearse public, embodied, and communal space. The 'people on the square,' writes Lozano-Hemmer, 'embody different representational narratives,' creating 'a collective experience that nonetheless allows discrete individual participation' (Lozano-Hemmer, 2001a). While each active participant understands a per-formed body through their shadow play, they also encounter per-forming the square and buildings and people around them, the shaping of this space and its continuous relationship to their own flesh as well as to other spaces and bodies and matter – in their immediate environment and (in images) around the world. In *Body Movies*, participants' interactions– all of which they may or may not be consciously aware of – intervene in the mutual emergence of a broadly defined and engaged embodiment and a broadly defined and engaged space. It stages drawn-out and implicit bodies and spaces that we simultaneously activate and experience, through movement. *Body Movies* productively confuses processual embodiment and architectural space-making, asking us to practice the relation of inside and outside, personal and public, actual and virtual. It inaugurates a complex and creative dance, where inter-activities make space virtually and actually felt.

Lozano-Hemmer's work attunes us to our body's preacceleration, in space – personal and public space, architectural and virtual space. *Body Movies* emphasizes the space of the body that cannot be reduced to the boundaries of our skin, the limited image we see on screen, or even our present movements around the square. Here our moving, affected, and affective bodies evince stories and alien histories that are made sensible in and as space; they are incarnated, together, but fleetingly, as something shared and yet not. This sharing and not, present but not, body and bodies, space and spaces becomes, like a topological figure, more than what it is. Both space and bodiliness are potentialized, are accented as susceptible to folding, division, and reshaping, open to continual negotiation. Participants shrink and grow, live and transform and shift with the spaces and stories they move with and in and as their environment. Body and space, here and elsewhere,

are implicated in one another, and each presence (or absence) is an incipient action that we *feel* as instantiated through movement and relation. *Body Movies* effectively and affectively intensifies our incorporating practices, our moving, interrelating bodies and spaces as they come to matter, as matter, performed. *Body Movies* is a complex layering of bodies and space that frames the performance of embodiment and spatialization. Here we conceptually sense, we move–think–feel and practice 'flesh-space.'[4]

Lozano-Hemmer's interests in place-making and embodiment are explored further in his later series of *subsculptures*. For example, *standards and double standards (subsculpture 3)* (2004, Figure 25) sees fifty individual belts suspended at waist height from the ceiling of the exhibition room. Each is fastened at the front, appearing to hold up an invisible being's pants, and attached to stepper motors that seem to turn this person in a full 360 degrees. When the space is empty of people, the belts slowly ripple back and forth in a circular fashion, appearing to be floating would-be bodies that are scanning the room and looking for someone or something to focus on. The dynamic movements are determined by cellular automata equations similar to those used by Simon Penny in *Traces'* active trace. When there are people in the space, however, these almost-absent forms are controlled by a digital video tracking system, whereby the twisting belt buckles make it look as if their absent bodies are turning to face passersby.

As the first body enters the empty space of *standards and double standards*, the belt they are closest to turns its buckle to face them. After several seconds, belts further from his or her position follow suit. This movement continues undulating outward, the participant 'triggering a wave-like chain reaction and creating a force field' (Perron, 2004). As more people enter the installation 'numerous force fields are generated and much like weather disturbances provoke unpredictable movement among the belts' (Perron, 2004). Each individual's presence and movement creates patterns of interference in the room. Organic life-like behaviors rotate the belts in relation to each other, the space, and everyone moving in and around both.

Lozano-Hemmer again plays with notions of presence and absence in this piece, but instead of using large-scale shadows as in *Body*

Movies, he gives visible and tangible life to many non-bodies, while also relating them to our own, through their relative movements and installation at waist height. The sum of the contraptions is an 'absent crowd' any participant can walk around or through (Lozano-Hemmer, 2007). The artist turns inanimate objects into animate forms, in a doubled gesture that performatively presents space and matter as inextricably linked. In the first gesture, Lozano-Hemmer produces an absent body by giving movement and life to a belt; in the second, he makes a sea of absent bodies respond to our presence and movement.

Lozano-Hemmer avows that he has created an 'unpredictable connective system,' one that can 'visualize complex dynamics' (Lozano-Hemmer, 2007); but perhaps more notably, the system actually catalyzes such dynamics, in and of the relation between bodies, non-bodies, and space. Contrary to the other works thus far written about in this book, *standards and double standards* is a very slow-moving interaction; its lightly swinging and creeping belts ('never losing sight of the symbolic association between the belt and paternal authority'
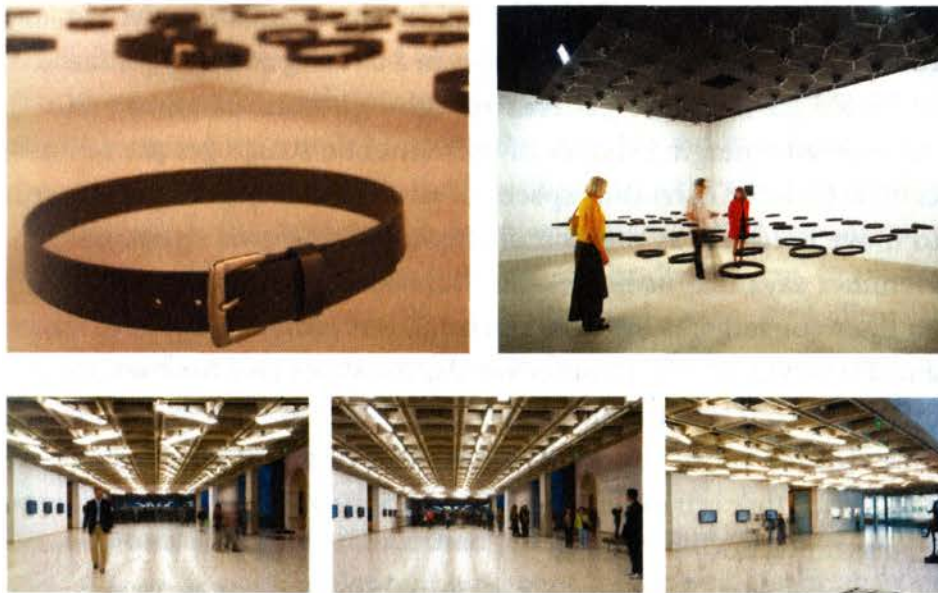

Figure 25.   Rafael Lozano-Hemmer I Top: *Standards and double standards, Subsculpture 3*, 2004 I Leather belts, stepper motors, surveillance camera, tracking system. Dimensions variable I Bottom: *Homographies, Subsculpture 7*, 2006 I Motorized fluorescent light tubes, computerized surveillance tracking systems, custom software. Dimensions variable I see endnote for full image credits[5]

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Lozano-Hemmer's *subsculpture 7, homographies* (2006, Figure 25), uses one-hundred and forty-four robotic and fluorescent light fixtures, controlled by a networked computerized surveillance system. As visitors meander and explore under the installation, its glowing tubes of light rotate from the centre, in a circular and fan-like fashion, to 'create labyrinthine patterns of light' (Lozano-Hemmer, 2007). The overall emerging shapes of these mobile structures are reminiscent of paths or corridors, spaces of passage that beg for participants to move between, as they simultaneously transform, them. Lozano-Hemmer says that *homographies*' 'vanishing point,' the point where its lines converge, is 'not architectural, but rather connective' (Lozano-Hemmer, 2007). In other words, the space and how we see and interact with it is determined relationally, by who is there and where they stand or move at any given moment. It is thus a 'reconfigurable light-space that is based on flow, on motion, on lines of sight' (Lozano-Hemmer, 2007).

homographies' 'light-space' not only shifts in relation to each individual person's presence and movement, but also to how many people are present and where they are in relation to one another and the space. According to the video documentation online, the light fixtures respond to the presence of a single person as if they were producing

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a magnetic field of influence; when two or more people are detected, the system rotates its lighting so that 'light corridors' are made between them; and, as more people move in and around the space, the lights reflect the influence of all of them, creating complex patterns similar to isobars.[6] This is all occasionally interspersed with cellular automata algorithms that choreograph the lighting in a programmed sequence, in order to complexify and introduce a level of randomness or outside influence in our interactive experience.

In *homographies*, Lozano-Hemmer transforms not just the light fixtures and the light they make, but also the physical space of the room. It feels and moves with us, as we feel and move with it. The connective tissues or forces between our bodies and their environment influence how we see, experience and move in, as well as change, the space around us; and the dynamic light structures pirouette to create new shapes, influencing the very movements that they are responding to as we try to choreograph their course. Performers might walk as they normally would through any passage, but with their necks craned upward to watch the rippling effects / affects of that walk; they sometimes, and again, mirror the piece's reactions, standing in one spot and pirouetting around like the fixtures above; they run around the circumference, to the corners, chase the lights and lighting, sometimes jumping up into, or leaping through, the air, in a futile but no less fertile attempt to catch the invisible space they feel themselves transforming; they watch each other as they move, the movement of others that changes their own inter-actions, and vice versa, in an ever-transforming and dynamic flux of bodies and space. And all of this amplifies the inside / outside of the technogenetic 'ground' – not just beneath their feet, but as the space of the body.

Lozano-Hemmer's works create potentialized contexts, semblances of situations, where embodiment and spatialization are intensified as relational mappings rather than pre-mapped and quantifiable configurations. Here complex and emergent forms are literally and figuratively suspended – as image, as belt, as light fixture, as body – so that we may take account of our ongoing, environmental, and bodily formations. At stake is how we make and mediate, understand and practice, space – for ourselves and for each other.