

SEE YOURSELF SENSING

REDEFINING HUMAN PERCEPTION

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REFRAMERS

Before you assume that you are sensing in real time, and that it is your own body holding this book, let science reframe your conception of self. Over the past two decades, neuroscientists have discovered that our senses are not necessarily confined to our own bodies. We are capable of experiencing sensation via another—a person, a prosthesis, or a virtual other—as well. In one simple experiment, a participant is shown a rubber arm (or virtual arm) receiving tactile stimulation. At the same time the participant's own hand, hidden out of sight, receives the same stimulation. The participant experiences the rubber hand as being a part of his own body.¹ Similarly, watching someone engaged in a particular action—drawing for example—results in the same motor neurons in our brains firing as do when you perform that action yourself.² In other words, watching something—someone in pain, someone get tackled—is in some neurological sense like experiencing it yourself. Scientists call the networks of brain cells involved in such electric mimicry “mirror neurons”. They give us the sense of inhabiting our own bodies even as they undermine our sense of our own physical boundaries; or, looked at another way, they have the capacity to transform our fundamental sense of inhabiting our own bodies. In one experiment, a patient's anaesthetised hand was literally made to feel touch sensations when watching someone else's hand being poked.³ Normally, the hand would send touch reception signals back to the brain confirming that it was not being touched, thereby inhibiting the consciousness of feeling.⁴ But this feedback does not happen for everyone. Patients who have experienced damage to the right parietal lobe, one of the areas responsible for our body image, experience themselves as having a doppelganger, or phantom twin.⁵ Talk about seeing yourself sensing—such patients experience seeing the phantom twin from the point-of-view of an outsider. Vilayanur S Ramachandran and Diane Rogers-Ramachandran of the University of California, San Diego, describe this behaviour first hand:

A few years ago we saw a patient with a right frontoparietal brain tumour who was mentally normal in every respect except that he felt a phantom twin attached to the left side of his body that mimicked his every action. If he was touched, he also felt the twin being touched a few seconds later. Stimulating the vestibular canals in the patient's inner ear made him feel like he was twirling around and caused the phantom to shrink and shift. (The vestibular system, which

contributes to balance and spatial orientation, connects to the right parietal lobe.)⁶

They describe another patient who went so far as to develop a severe hatred of their hand, labelling it a Communist.⁷

Peter Campus, a pioneer of using video as a conceptual space-altering medium, foreshadowed these contemporary neuroscientific notions of embodiment in a series of video installations from the 1970s, works that present the viewer with real-time, technologically fabricated doppelgangers that one recognises as oneself and as another at the same time. Through varied spatial arrangements of a room, a close-circuit video system, and a person, Campus created environments in which one would experience oneself through alternative vantage points and changes of state impossible to experience from within one's own body. According to filmmaker Bill Viola, “Campus methodically, almost clinically, dissects the nature of visual perception before our eyes.”⁸

Encountering one of these pieces in person is a haunting, unforgettable experience. The room is dark and its dimensions unclear. A glowing pale blue rectangle of light illuminates one wall. As you approach, the rectangle suddenly comes alive with a disorienting burst of light, movement and shadow. Quickly you realise that you are seeing your own image projected live on the wall in black and white. You look at yourself as if seeing a ghost. The pale, fragile quality of the light and tenuous consistency of the image speak of impermanence. Then, as in most unexpected encounters with your own likeness, you discover that you are not what you seem to be.⁹

In the 1972 installation *Interface*, Campus performs a unique spatial math. The viewer faces a clear sheet of glass, on which he or she sees two real time images, one a backward reflection, the other a video projection that is the right way around a function of the video camera pointing at the viewer, and the projector pointing at the glass, away from the viewer. Campus, who studied psychology and cognition in his early years, merges a fascinating array of ideas—conceptual, psychological, and even neurological. Though he devised these pieces long before mirror neurons were discovered, and before the mirror gained ground as a therapy for chronic pain, he revolutionised the use of the body, media and the mirror in art, and he intuitively and concisely cut to the essence of the question of the self, and its boundaries. If mirror



Peter Campus, *Interface*, 1972. Closed-circuit video installation. Image courtesy the artist.

neurons allow us to see others as ourselves, then just what are the implications of the firing of mirror neurons when the brain recognises the 'otherness' of itself?

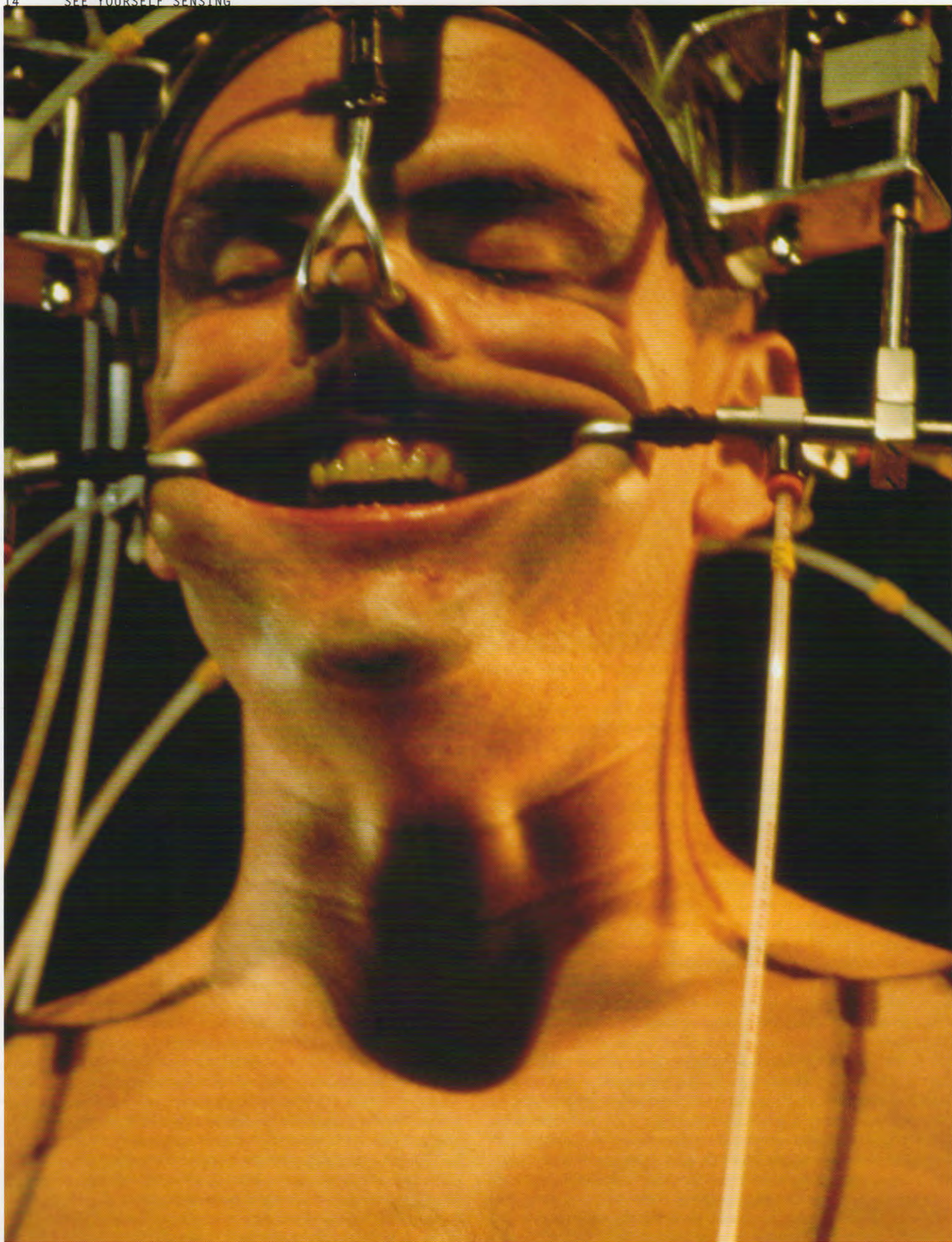
Campus' installations elicit delight, fascination, confusion and disorientation. His work appears in the "Reframers" chapter and the "Mediators" chapter. On the one hand his early installations provided viewers with a wholly new way of experiencing themselves. Despite his economy of means and forthright use of materials, Campus made magic. The apparition-like images were as ephemeral as dusk or dawn. They appeared when one entered, moved unpredictably when one moved, and disappeared when one exited, leaving a darkened room behind. On the other hand, Campus is a pioneer of mediation. Inspired by watching the Apollo 11 moon landing on television, he transformed the use of video from a stationary medium into one that involved space, time and motion.¹⁰ Technology is the ever-present mediator between the self and the otherness of the self.

The reframer mindset calls into question all aspects of perception and its mechanisms. Are we at the helm of our own body? Do we move of our own free will? Are our senses reliable? What is the difference between "I" and "you?" Normally the automatic mechanisms we think of as our own can have alternative pathways, new means of control and surprising end results. Some reframers are fuelled by neuroscience and revelations about the neural pathways of sensing. Others match the body up with technologies or structures never meant for the body, causing displacement in space, time or subjectivity. Their function can range from social remedy to body extender to societal critique

and their disposition is alternately funny, jarring, instructive or even violent. Reframers tend to test the limits of an idea, and the limits of the artist as well.

Marcel-Í Antúnez Roca, for example, relegates control of his body to someone else and suffers the consequences. In *Epizoo* Roca stands alone, his nearly naked body draped in wires fixed to pneumatic mechanisms that connect to his nose, mouth, buttocks and pectorals. The mechanism is an exoskeletal robot activated by the spectator through the touch of a computer. Initially the spectator approaches the computer and interacts with the image of Roca in the manner one would a computer game. As Roca's body pulses and quivers, as he shouts and multiplies on a rear projection, the spectator recognises the connection between hand, mouse and Roca's body. With a click they can make his mouth twitch, or stretch his lips to impossible lengths. What they do next—push the limits of his body to near torturous levels, or retreat from the computer—is the stuff of the experiment. Roca writes,

My idea consisted of offering the erotic parts of my body to the audience and so break up the—albeit metaphorically—the situation created around the AIDS epidemic, which has turned us all into potential contaminants... months after the first presentation of *Epizoo*, I discovered that I was absolutely victimised, without any right of reply, and that convinced me to change the piece. I incorporated a video camera and a microphone with a range of sound effects which enable me to struggle against the existing pressure, which was psychologically very strong and which made me vulnerable.¹¹



Marcel·lí Antúnez Roca, *Epizoo*, 1994. Photo ML Vargas. Image courtesy the artist.



Marcel·lí Antúnez Roca, *Epizoo*, 1994. Mechatronic Performance. Eax Scene, general view. Photo Nuria Andreu. Image courtesy the artist.



Marcel·lí Antúnez Roca, *Requiem*, 1999. Interactive robot, body in. Photo Darius Koehli. Image courtesy the artist.

Roca's interactive pneumatic exoskeleton *Requiem* gives the spectator more control over Roca's body but less power to inflict pain. In fact, pain is not an issue, since, as the title implies, this is a project about giving the appearance of life to an insensate body—a corpse. As Roca's beefy aluminium exoskeleton hangs from a gallows, spectators activate eight sensors around the room that force his principal joints—hands, elbows, shoulders, jaw, knees, thighs, groin, and hip—into various naturalistic poses including Greeting, Walking and Falling, and even more athletic and artistic ones, such as those of Swedish Gymnastics, Tai chi, Flamenco and Contemporary Dance.¹² If the extreme eventuality of the prosthesis is the end of the body, *Requiem* represents an interim state: a flesh body entombed in a robotic puppet. In contrast, the visceral performance *Afasia*, restores to Roca full body control. The "dreskeleton" or exoskeletal body interface he wears even gives him god-like powers. In this one-man interpretation of Homer's *Odyssey*, Roca hurls his limbs around the stage, orchestrating musical robots, real-time images and sound with switches and digital readings of his body movement. But it is all non-verbal. *Aphasie* refers to a disorder that affects one's ability to express and understand language.

For some artists the sensory apparatus are sites for signification: for references to history, memory and the unconscious.

Artist Ann Hamilton, like Roca, appears in her work but in a far quieter and meditative way. While sometimes she uses her body viscerally—the inside of her mouth for example—her work explores more than just the body site itself. The senses are a conduit for conceptual and intellectual ideas, for revelations into the site of the installation, local history, social history and body memory.

As early as 1984, her first year of graduate school, Hamilton emerged as a sense reframer. Her game-changing *toothpick suit* worn for (*suitably positioned*) was her first installation to include her own body. Hamilton had purchased a used men's suit and covered it with a dense layer of protruding toothpicks, denying the flexibility of the garment and turning it into an armoured second skin. Her initial intention had been to display it on an inanimate structure. On the suggestion of a classmate she decided to wear the piece herself, standing for periods of three hours within her studio coming face to face with visitors to the Yale School of Art's sculpture studio Open House, including this author, who was a graduate student at Yale at the time.¹³ Hamilton's work at these bi-yearly open studio events was mesmerising and unforgettable. In the span of over 25 years between now and seeing her early work in person in the 1980s, those early installations have continued to serve as an inspiration for my teaching and ultimately for the writing of this book.

(*suitably positioned*) was the last time that Hamilton would face the viewer for more than a decade until her *Face to Face Series*, but it was that very moment of being inside of the piece, immobilised and vulnerable, part live/part object hybrid, an integral part of the spatial continuity, present yet removed, that began her addiction to being present in her installations, usually performing some difficult or repetitive task tied to the themes of the work.

For the next 15 years her presence in installations would be less approachable. One could go near her, but not within her cone of vision. So began a stream of works in which the body and the body's senses are restricted or forced to work over time at a job normally done by another part of the body. In *lids of unknown positions*, another graduate school installation, Hamilton included two humans with heads in extreme positions. One body was positioned on a lifeguard chair that was too big for the room. The person's head poked up into a hole cut in the ceiling. The ceiling served as an uncanny blindfold or afforded the spectator a peek into the secret space between the ceiling and the roof. The other body was flopped onto a wood table, the head buried in a mound of sand. Despite the evocation of death, Hamilton's images don't read literally. Hamilton took *lids of unknown positions* out-of-doors to Yale's Beineke Plaza, to express her solidarity for a massive ongoing anti-apartheid demonstration. Meanwhile in the gallery the spectator, the only one whose head is still viable, gets to puzzle out the meaning of another seaside ingredient: an entire wall clad with local blue/black oyster shells—including a cantilevering lawn roller in their midst—that filled the room with the smell of the harbour.

In the *body object series*, Hamilton photographed her body with a range of mundane objects replacing a key body part—a paddle, a door, a shoe. In *Untitled (body object series) #5-bushhead*, 1984–1993, Hamilton's head is replaced by a dense bush. Her hands and legs stand out for their fleshiness in this hybridised form. Though the bush is mute, silent, and un-body-like, somehow the image makes sense. The viewer is left to wonder about the implication. Should the image be taken at face value—as humorous, surreal or disturbing—or should we read into it questions about embodiment and sensation, and attempt to reason out the body's



Ann Hamilton, *body object series #13 • toothpick suit/chair*, 1984–1993. Photograph, 11x11cm. Image courtesy Ann Hamilton Studio.

new functionality? It is almost impossible to avoid the latter. Habit prompts us to imagine embodiment in even the most vaguely recognisable human images. We cannot help but wonder about the bush head's muted senses and imagine a scenario where the body moves using touch alone.

Another reframing trend in Hamilton's work is the use of one part of the body for an extraordinary or unusual purpose, or to replace another body part. The mouth has been an ongoing site for Hamilton's art. In the *untitled (aleph)* the fourth in a series of four videos from 1993, Hamilton is filmed struggling to talk with her mouth stuffed full of smooth marbles. In *malediction* her mouth is a workhorse, helping to produce dough imprints of its negative space for an entire month. *malediction* refers to local Soho history of immigrant labour and sweatshops, exploited workers and clothing manufacturing. Her mouth imprints—teeth marks and all—are carefully piled in a casket-shaped basket until it becomes full. In the background one hears an ongoing murmur of two Walt Whitman poems—"Song of Myself" and "The Body Electric", from *Leaves of Grass*, poems that praise the body and speech, even as the artist, with her back to the gallery-goers, continues her repetitive work, her mouth otherwise engaged.

For her *Face to Face Series* Hamilton invented a pinhole camera for the mouth. She first used the device to photograph herself, aiming to take a picture of her face in that vulnerable moment where one is completely engaged, and the mouth hangs open unselfconsciously. She was also interested in a form of sensory substitution—in the idea of taking a picture at the orifice where speech emerges, thereby replacing speech with vision. What she did not realise, until the pictures were developed, was the extent to which the mouth aperture mimicked the perimeter of the eye, and how the image of herself would appear to be like the pupil with some hazy reflection in it. Not only was Hamilton seeing herself sensing, she was tasting herself sensing. She then turned the mouth camera onto friends, colleagues and landscapes. The photographs are mysterious and varied due to the changing aperture of her fleshy shutter lips and to the affects of the long exposure, which give the subjects a blurred or ghostly border.



Ann Hamilton, *body object series #17 • toothpick suit*, originally part of the installation (*suitably positioned*), 1984-2006.
Photograph, 11x11cm. Image courtesy Ann Hamilton Studio.



- 1 Ann Hamilton, *Untitled (body object series) #5-bushhead*, 1984-1993. Image courtesy Ann Hamilton Studio.
- 2 Ann Hamilton, *the lids of unknown positions*, 1984. Installation tableau: two versions: live (two figures), duration of the tableau, approximately two hours, and static (without figures). Overall dimensions: 25x56x61cm. Materials: wall; mussel shells; lawn roller; lifeguard chair; ceiling hole; wood table; wood chair; pile of sand. Open House, Sculpture Department, Yale School of Art and Architecture, New Haven, Connecticut, Fall 1984. Photo Bob McMurty. Image courtesy Ann Hamilton Studio.
- 3 Ann Hamilton, the artist exposing a pinhole image from a camera placed in her mouth, 2010. Image courtesy Ann Hamilton Studio.
- 4 Ann Hamilton, *Face to Face* images, 2001. Image courtesy Ann Hamilton Studio.

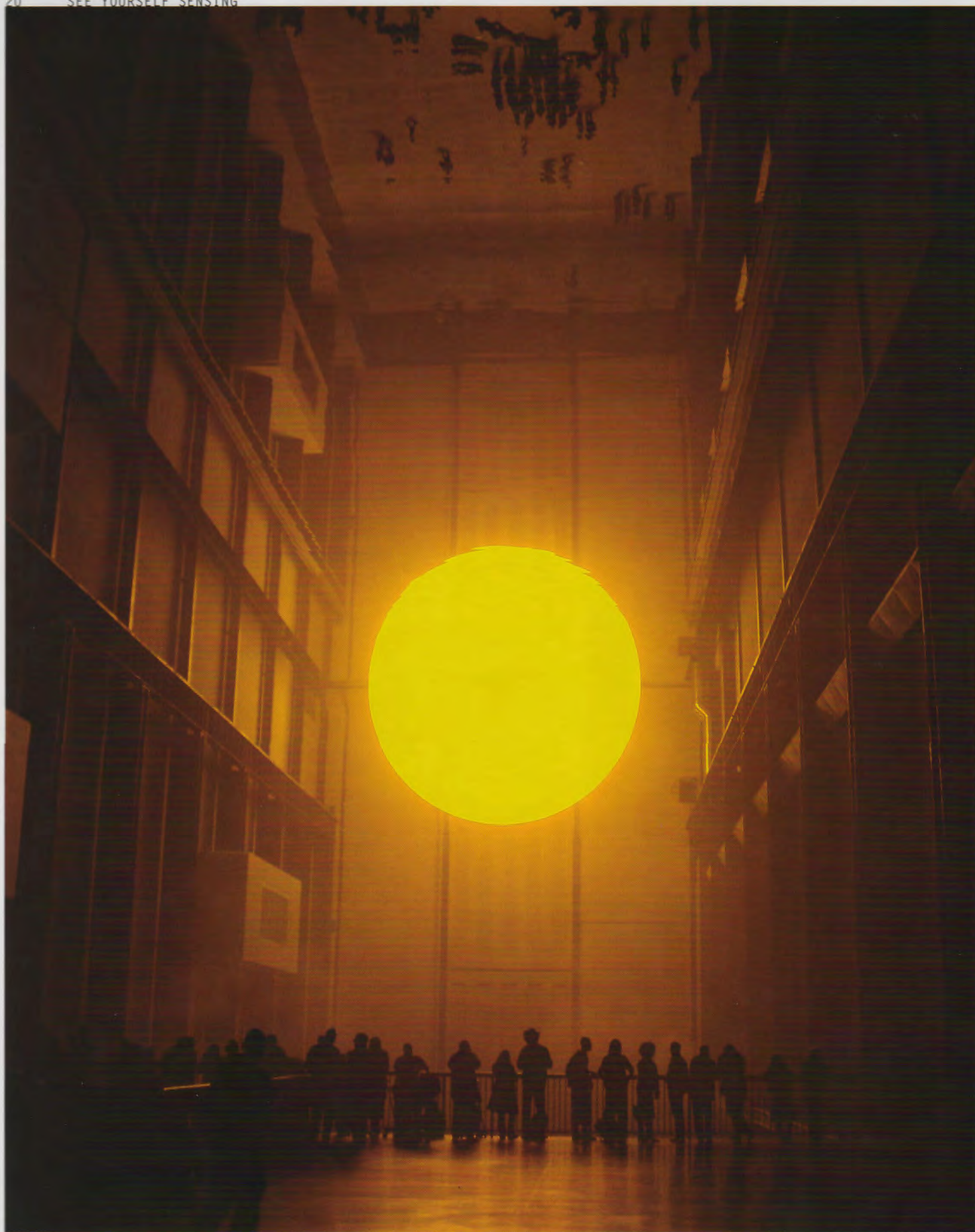




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Olafur Eliasson, *The weather project*, 2003. Monofrequency lights, projection foil, haze machines, mirror foil, aluminium, scaffolding, 2670x2230x5540cm. Installation view Turbine Hall, Tate Modern, London, 2003. Photo Olafur Eliasson. Image courtesy the artist; neugerriemschneider, Berlin and Tanya Bonakdar Gallery, New York © 2003 Olafur Eliasson.



Olafur Eliasson, *Green river*, 1998. Los Angeles, California, 1999. Uranin, water. Image courtesy the artist; neugerriemschneider, Berlin and Tanya Bonakar Gallery, New York. © 1998 Olafur Eliasson.

In her artist's statement Hamilton describes the conceptual core of her work:

In a time when successive generations of technology amplify human presence at distances far greater than the reach of the hand, what becomes the place and form of making at the scale and pace of the individual body? How does making participate in the recuperation and recognition of embodied knowledge? What are the places and forms for live, tactile, visceral, face-to-face experiences in a media saturated world?"¹⁴

Hamilton's work slaps us in the senses. That is what reframers do. They yank us out of passive perceiving; they yell at the senses and demand of us to smell when we expected to see. They challenge our assumptions about our own embodiment, skipping norms to cut to some alternative truth about sensation.

Reframers exist across multiple art practices, from the hand-made, to the machine driven, to networks, responsive and virtual environments. Some artists with cutting-edge practices—Olafur Eliasson, Carsten Höller and Hyungkoo Lee—find inspiration in non-nostalgic mechanical and object-oriented projects for the body. In a review of Olafur Eliasson's exhibition *Visionary Events*, Jonathan Crary wrote critically about our "passive and obedient acceptance of the idea that significant cognitive perceptual innovations will inevitably be within the wired terrain of cyberspace, computer graphics and communication systems".¹⁵

Perceptual innovations also emerge from originality and instinct. Two projects worth mentioning—Eliasson's *The weather project* installed at Tate Modern in 2003 and Christoph Büchel's

sensory-bending installation *Untitled* at Marracone Inc in 2002—defied installation norms and created provocative spaces that reframed the senses despite the enormity of the experience and the transparency of the mechanisms. Both of these artists inspired the writing of this book.

In *The weather project* installed in the Turbine Hall of Tate Modern in London, Eliasson created an interior microclimate equipped with sun, mist and what became a tanning beach of sorts. Based on the evidence of 1,000s of museum goers lounging, sunbathing and congregating in the sun, it seemed easy to temporarily forget the artifice of the installation. But only for a second. Eliasson mounted a mirrored ceiling in the Turbine Hall to remind spectators that it was a conceptual event, that it was indeed taking place within an art institution, and that there would be moments for pure sensation and for seeing yourself sensing—self-reflexive ruminations on sensing. Daniel Birnbaum's description of Eliasson's *Beauty* installation holds true for *The weather project*: "There are no secrets, just a fascinating optical phenomenon to behold. Instead of being tempted to look for some veiled gadgetry, the viewer is thus confronted with the thing itself: the fact that light and water in combination produce colour."¹⁶

While many of the artists in this book engage perception at the scale of the body and local space, Eliasson's perceptual wake-up calls involve enormous landscapes, astonishing natural phenomena (often fabricated), scientific research and human interaction on the scale of whole cities, not merely gallery space. What better way to wake up an entire city than to dye its river green (*Green river*), if only for a few hours, or to erect a second



Christoph Büchel. (*without title*). 2001. Exhibition at Maccarone Inc. New York. Dimensions: variable. Photos Christoph Büchel. Image courtesy the artist and Maccarone Gallery, New York.

setting sun (*Double sunset*) visible to a whole portion of the city. *Double sunset* had a triple effect: it made one doubt one's eyes, it made one doubt one's environment, and it made one hyper-aware of the rhythms of the reliable, glorious but taken-for-granted sun. In contrast *The Weather Project* and *Your Atmospheric Colour Atlas* invert natural phenomena and synthesise it using industrial tools: fluorescent lights, monofrequency lights, fog machines and mirror foil arranged within rectilinear architecture. *Your Atmospheric Colour Atlas* mixes green, blue and red fluorescent lights in fog to create a series of interim volumetric colours. A sloping floor and poor visibility make the spectator check in with their body, even as they inspire the desire to get lost in the colour.

Christoph Büchel's solo debut at Marracone in 2002 was one of the most fascinating sensory installations to date. If, like this author, one spent one's childhood weekends at the Showboat Funhouse at Palisades Amusement Park in New Jersey, or somewhere similar then this installation was for you. One entered the three-storey warren of spaces on the second floor, outside a seedy bathroom, where the bathroom attendant—never giving a nod to the artifice—required a signature on a release form. The dilapidated bathroom seemed like a dead end until one spotted a punctured hole in the sheetrock, accessible only by climbing into the bathtub. An average-sized person could barely fit through the rough hole.

At the moment when one's body was half way between spaces, one was overcome with a sense of disorientation. This increased upon arriving at a schoolroom that had ceilings so low that one had to snake across the floor to get to the blackboard. Already experiencing a sense of internal imbalance, one climbed ladders and snuck or peered into additional spaces, including a fully equipped bunker and a rec room with an impossibly low ceiling. All the while there were temperature and audio changes, including wonky ice cream truck music, a blaring radio and the comforting sound of rain on the roof, which, one found out if one stepped out through the window and in again, turned out to be made by a perforated hose raining down on an out-of-place shingled roof sitting inscrutably inside of a room.

Büchel's installation created a deviceless disorientation. It anchored the senses and then undermined them, forcing one to continually reevaluate one's grip on reality. That is the ambition of a reframer: to reorient, to reconceptualise, to reposit. You know it when you sense it.

1. V Sanchez-Vives, Maria, Bernhard Spanlang, Antonio Frisoli, Massimo Bergamasco and Mel Slater, "Virtual Hand Illusion Induced by Visuomotor Correlations", April 2010, PLoS ONE, November 2010, <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0010564>.



2. Sanchez-Vives, Spanlang, Frisoli, Bergamasco and Slater¹, "Virtual Hand Illusion Induced by Visuomotor Correlations".

3. Ramachandran, Vilayanur S and Diane Rogers-Ramachandran, "Hey, Is That Me over There?", 13 April 2010, *Scientific American: Scientific American Mind*, November 2020, <http://www.scientificamerican.com/article.cfm?id=hey-is-that-me-over-there>.

4. Ramachandran and Rogers-Ramachandran, "Hey, Is That Me over There?"

5. Ramachandran and Rogers-Ramachandran, "Hey, Is That Me over There?"

6. Ramachandran and Rogers-Ramachandran, "Hey, Is That Me over There?"

7. Ramachandran and Rogers-Ramachandran, Hey, Is That Me over There?

8. Viola, Bill, "Peter Campus Image and Self", 9 February 2010, *Art in America*, December 2010, <http://www.artinamericamagazine.com/features/peter-campusimage-and-self/>.

9. Viola, "Peter Campus Image and Self".

10. Smith, Roberta, "Dark Light" in *Peter Campus: Video-Installationen, Foto-Installationen, Fotos, Videobänder*: Kölnischer Kunstverein, 11 May–4 June 1979, Neuer Berliner Kunstverein, 10 August–8 September 1979, Cologne: Kölnischer Kunstverein, 1979, p. 32.

11. "Conversation between Marcel-Íl Antúnez Roca and Claudia Giannetti", 1997, 1998.

12. Roca, Marcel-Íl Antúnez, "Marcel-Íl Antúnez Roca: Interactive Installation. Exoskeletal Robot Allowing Control of the Wearer's Body", May 2010, http://www.marceliantunez.com/tikiwiki/tiki-read_article.php?articleId=42.

13. Simon, Joan and Ann Hamilton, *Ann Hamilton: An Inventory of Objects*, New York: Gregory R Miller & Co, 2006, p. 10.

14. Hamilton, Ann, "Ann Hamilton", 2011, Ann Hamilton Studio, December 2010, <http://www.annhamiltonstudio.com/2010>.

15. Crary, Jonathan, "Olafur Eliasson: Visionary Events", *Olafur Eliasson*, ed. Basel: Kunsthalle. Basel: Mutton: Schwabe & Co AG, 1997. Print p. 2.

16. Birnbaum, Daniel, "Olafur Eliasson", 1998, *ArtForum*, May 2009: BNET. http://findarticles.com/p/articles/mi_m0268/is_n8_v36/ai_n27527621/.



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Hyungkoo Lee

Hyungkoo Lee's inspiration for *The Objectuals* came to him while riding on the New York City subway. While gripping a metal rail he became aware of the fact that his own hand was much smaller than that of the Caucasian male next to him.¹ So began the Korean artist's exploration into the stature, self-esteem and status of the Asian male compared to his Caucasian counterparts. Lee's *Objectuals* are a series of elegant pseudo-scientific glass helmets that augment or diminish the image of the wearer's eyes and mouth through the use of optical lenses. The more significant the distortion, the more grotesque the face. Who needs facial surgery when Lee's helmets can give you those enlarged eyes and that small mouth and chin currently considered the benchmark for fashionable beauty.

The Objectuals augment other body parts as well using glass and water for its optical effect. *Enlarging My Right Hand with Gauntlet 1* had crude beginnings: a cut up plastic soda bottle and shot glasses donated by a bartender friend. When the device was filled with water and his hand inserted, this new magnified forearm could compete with the big boys.² As it turned out, the augmented hand appeared to have only three visible fingers. It wasn't long before Lee decided to work backwards, actualising the transformation by scientifically reconstructing the implied skeletal structure of the

new arm. From there he went on to his celebrated *Animatus* series—reconstructions of the fictional skeletal anatomy of famous cartoon characters like *Wile E Coyote* and *The Roadrunner*.

Mirror Canopy and *Creeper*, both from his *Eye Traces* exhibition at the Doosan Gallery, Seoul, are movable machines that allow humans to become part insect. The devices alter the sensation of the participant, in keeping with Lee's interest in visual perception and motion.

1. Kim, Sae-mi, "Hyungkoo Lee the Objectuals and Animatus", 2011, *Art in Asia*, Available: <http://www.artinasia.kr/content/view/17/31/>, December 2011.

2. Kim, "Hyungkoo Lee the Objectuals and Animatus."

- 1 *8E-P*, 2002. Image courtesy the artist.
- 2 *Enlarging My Right Hand with Gauntlet 1*, 2002. Image courtesy the artist.
- 3 *Altering Features with H-WR*, 2007. Digital print, 121x121cm. Image courtesy the artist.
- 4 *Creeper*, 2010. Magnifying lens, medical tray, mirror, pencil, pincette, hinges and plywood from desk, iron frame and leather straps from Swiss army backpack, aluminium, rivets, screws, bolts, nuts, wheels, skateboard part, 56x143x84cm. Image courtesy the artist.
- 5 *Self Portrait-H2*, 2002. Digital print, 160x120cm. Image courtesy the artist.

Atsuko Tanaka

Giacomo Balla captured the physical properties of electricity in his painting *Street Lamp* as early as 1909. Walter Benjamin famously wrote in *One Way Street* in 1928, "What, in the end, makes advertisements so superior to criticism? Not what the moving red neon sign says—but the fiery pool reflecting it in the asphalt."¹ Cinema, advertising, painting, photography and sculpture embraced light, electricity and the light bulb in the first half of the twentieth century. But it was Atsuko Tanaka, in 1956, who brought electricity to the body in art—engulfing herself in a tangle of hundreds of coloured tubular and round incandescent bulbs, and the heat, light and danger that accompany them. Tanaka recalls her inspiration for the *Electric Dress*:

For a long time I tried to come up with an interesting idea. After half a year or so, I was seated on a bench at the Osaka station, and I saw a billboard featuring a pharmaceutical advertisement, brightly illuminated by neon lights. This was it! I would make a neon dress!²

Not just any neon dress, but one in that would astonish. Instead of proceeding slowly with such dangerous technology so close to the body, Tanaka completely engulfed herself with tightly knit bulbs and wires until she all but disappeared into flashing lights. One explanation for her fearless use of the medium is her association with the Gutai, a group of Japanese artists whose manifesto, written by Jiro Yoshihara, promoted the creation of work that has been "never before seen or experienced"³. Another is the influence of the rapid industrialisation of Japan in the 1950s and the creeping of technology into everyday life.⁴ Then there is the ineffable part—the insight, timing and talent that allows someone to influence a whole way of making art—in this case performance.

Tanaka wore a protective vinyl suit when she tried on the *Electric Dress* for the first time. The dress was extremely heavy and awkward and caused the wearer to move "with a ghost-like slowness"⁵. And while it was magnificent and ethereal, it was also deadly. Tanaka described it like this: "The moment Mr Sannomiya said, 'I am turning the electricity on', I had the fleeting thought: is this how a death-row inmate would feel?"⁶

1. Benjamin, Walter, *One-Way Street and Other Writings*, London: NLB, 1979, p. 86.

2. Tanaka, Atsuko, Ming Tiampo, and Mizuho Kato, *Electrifying Art: Atsuko Tanaka, 1954–1968*, Morris & Helen Belkin Gallery, 2004, p. 72.

3. Yoshihara, Jiro, "The Gutai Manifesto", Ashiya City Museum of Art and History, 20 December 2010, http://www.ashiya-web.or.jp/museum/en/103education/nyumon_us/manifest_us.htm.

4. Tanaka, Tiampo, and Kato, *Electrifying Art: Atsuko Tanaka, 1954–1968*, p. 72.

5. Tanaka, Tiampo, and Kato, *Electrifying Art: Atsuko Tanaka*, p. 73.

6. Tanaka, Tiampo, and Kato, *Electrifying Art: Atsuko Tanaka*, p. 73.

1 Testing the *Electric Dress* at Atsuko Tanaka's studio, 1957. The man wearing the work is not Tanaka herself, but her brother. © Ryoji Ito and the former members of the Gutai Art Association. Image courtesy Ashiya City Museum of Art and History.

2 Atsuko Tanaka wearing the *Electric Dress* at the 2nd Gutai Art Exhibition, 1956. © Ryoji Ito and the former members of the Gutai Art Association. Image courtesy Ashiya City Museum of Art and History.







Erik Hobijn

Erik Hobijn's strangely optimistic machine allows one to burn and survive. The photos make it appear as though the user gets engulfed in flames. Actually the duration is quite short—0.4 seconds up to a maximum roasting of one second—but that fact does not make it any easier to volunteer to try it.¹ Having a flame-thrower aimed at you offers no reassurances, no matter the duration.

The machine is quite large at 11 metres long and 4 metres high. Prior to entering the device one is covered head-to-toe with a slimy gel that retards the flames. The flame-thrower shoots out a flammable liquid onto the participant's back, surrounding him or her in flames. That moment is horrific—a live version of hideous and unforgettable news reel images of napalm, protest self-immolations and other horrors—and the spectator is complicit in the act. Almost immediately the machine flips the burning individual around on a Lazy Susan-like plate and shoots water from the opposite side, rapidly extinguishing the fire.²

Though the piece was highly supervised and electronically timed, it was anything but safe (FYI—no one was injured testing out the machine). Hobijn thrives on that currency; his work consists, among other media, of a series of projects where war-like tools and explosions of fire (*Dante Organ* has 16 flame throwers) look and feel, and are dangerous.

Self-immolation is surprising common today. It continues to be a form of protest in China, India, Iran and Afghanistan among other nations. In 2005, in one single province of Afghanistan, 184 women—the majority teens forced into marriage—were brought to the hospital having set themselves on fire. 60 died as a result.³ So *Delusions of Self-Immolation* is not a made up phenomenon. What is brilliant and disturbing about Hobijn's machine is the fact that it was a sideshow for middle class artists. But it was also about mortality, empathy, alienation and the permeation of war. The only way to really find out what it was about was to try it.

1. Holzer, Derek, Erik Hobijn, "Interview with Erik Hobijn", 2000, *Acoustic Space*, December 2010, <http://acoustic.space.re-lab.net/interview-hobijn.php>, 15.

2. Derek Holzer, Erik Hobijn, "Interview with Erik Hobijn".

3. Synovitz, Ron, "Afghanistan: Self-Immolation by Women in Herat Continues at Alarming Rate", 2005, *Radio Free Europe*, 15 December 2010, <http://www.rferl.org/content/article/1057273.html>.

Delusions of Self-Immolation. 1993. Martin Hartz Kaplers on the DSI machine. The flame has hit him and the fire is curling around his body (left); Martin Hartz Kaplers has turned around completely, and getting the full blast of the water extinguisher (right). Photo Viola Pfaff and Peter Wirth, Die Sektion. Image courtesy the artist.

Carsten Höller

Carsten Höller's work seems straightforward—a pair of eyeglasses, a series of light bulbs, a slide—but once the spectator engages the installations the alchemy begins. Höller engineers his work to penetrate through space and into the spectator's brain causing shifts in perception or heightened awareness of the act of perceiving. Though many artists dabble in sensory-bending explorations, perception is Höller's currency and his repertoire is extraordinary.

The *Kit For the Exploration of the Self* includes the *Upside Down Glasses* and a structural backpack that uses mirrors to allow you to see yourself from behind as though you are walking toward yourself. It also includes various pills and hormones that will leave you denying your own existence. The *Upside Down Glasses* require a time commitment. If you wear them for only a short period, the inverting lenses will make the world appear upside down. Your hand, for example, will seem to be coming from above. According to the psychologist George Stratton—who experimented with a similar device in the nineteenth century—short stints with such glasses will make the wearer believe that the upside down image is a figment and not reality. In an intermediate state, one will begin to accommodate the upside down image and actually believe that it is reality. Finally, after eight days the brain will adjust and the wearer will experience the world as it once was—right side up.¹

It is one thing to read about such a device, and another to take up Höller's offer and try it—to feel your own eye-to-brain connection. But in the event that you did not try it, and you forgot that our brain receives the world upside down, Höller reconstructed the experience in his *Upside Down Mushroom Room*, a loopy installation that includes lights in the floor and oversized spinning mushrooms hanging from the ceiling.

In the 2000 exhibition *Synchro System* at the Fondazione Prada, *Light Wall* preceded the *Upside Down Mushroom Room* along Höller's predetermined circuit. Consisting of a grid of 1,000s of bulbs that switched on and off in a precise rhythm, *Light Wall*'s visual and aural intensity immediately worked its way into the mind. Höller had set the rhythm to alternate between a frequency just above 7.8 Hz—the threshold after which an epileptic seizure can occur—and just below it.² Such synchronicity with human brain activity triggered hallucinations when one closed one's eyes. If the hallucinations and the after images that followed did not bat home Höller's perceptual alterations, then the more literally inverted project in his sequence—the giant mushrooms—would.

1. Stratton, George, "Some Preliminary Experiments on Vision without Inversion of the Retinal Image", *Psychological Review* 3, 1896, pp. 613–617.

2. von Hausswolff, Carl Michael, "Carsten Höller" Galerie Micheline Szwajcer, 2 February 2010, http://www.gms.be/index.php?content=artist_detail&id_artist=28.

Upside Down Mushroom Room, 2000. Polystyrol polyester, wood, colour, metal, metal construction, electrical motors, plaster board, neon light, glass, acrylic paint, iron structure, 480x1230x730cm. Photo Attilio Maranzano. Image courtesy Fondazione Prada, Milan.







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- 1 + 2 *Test Site*, 2006. Installation views Unilever Series: Turbine Hall, Tate Modern, London. Image courtesy the artist.
- 3 *Kit For the Exploration of the Self*, 1995. Image courtesy the artist.
- 4 *Upside Down Glasses*, 1994-2004. Image courtesy the artist.



Tim Hawkinson

Can one read emotion in a star-nosed mole? No, and who knows if they even have any. Humans, though, have learned to read every nuance of the jumble of eyes, brows, nose, cheeks and lips that constitute the face. Every flick of the lip, flare of the nostril or brow lift has meaning, irrespective of the function of the sensory apparatus to which it belongs.

Tim Hawkinson anatomises facial expression by separating out emotion from the act. *Emoter* is a randomised machine—a series of interconnected portions of the artist's face that move according to signals generated by the gradation of images on a remote television screen. There are 19 motors on the face that turn on or off independently, triggered on by the appearance of a dark area or light area of the screen. *Emoter* makes faces that are not even humanly possible and yet we can still 'read'

them. Hawkinson looks goofy when his lips elongate, innocent when his lips curl up, and dazed when one eye collapses and one lip droops.

In the presence of *Emoter* one begins to move one's own face around. Humans cannot provide random inputs to change our face (unless you are Daito Manabe) but we can train ourselves to create an expression that belies our mood, cross-wiring emotion and feeling. It is not easy and it feels fake. *Emoter* slaps us with the simultaneous recognition of our humanity and our post-humanity as we see ourselves in a replicable robot or cyborg.

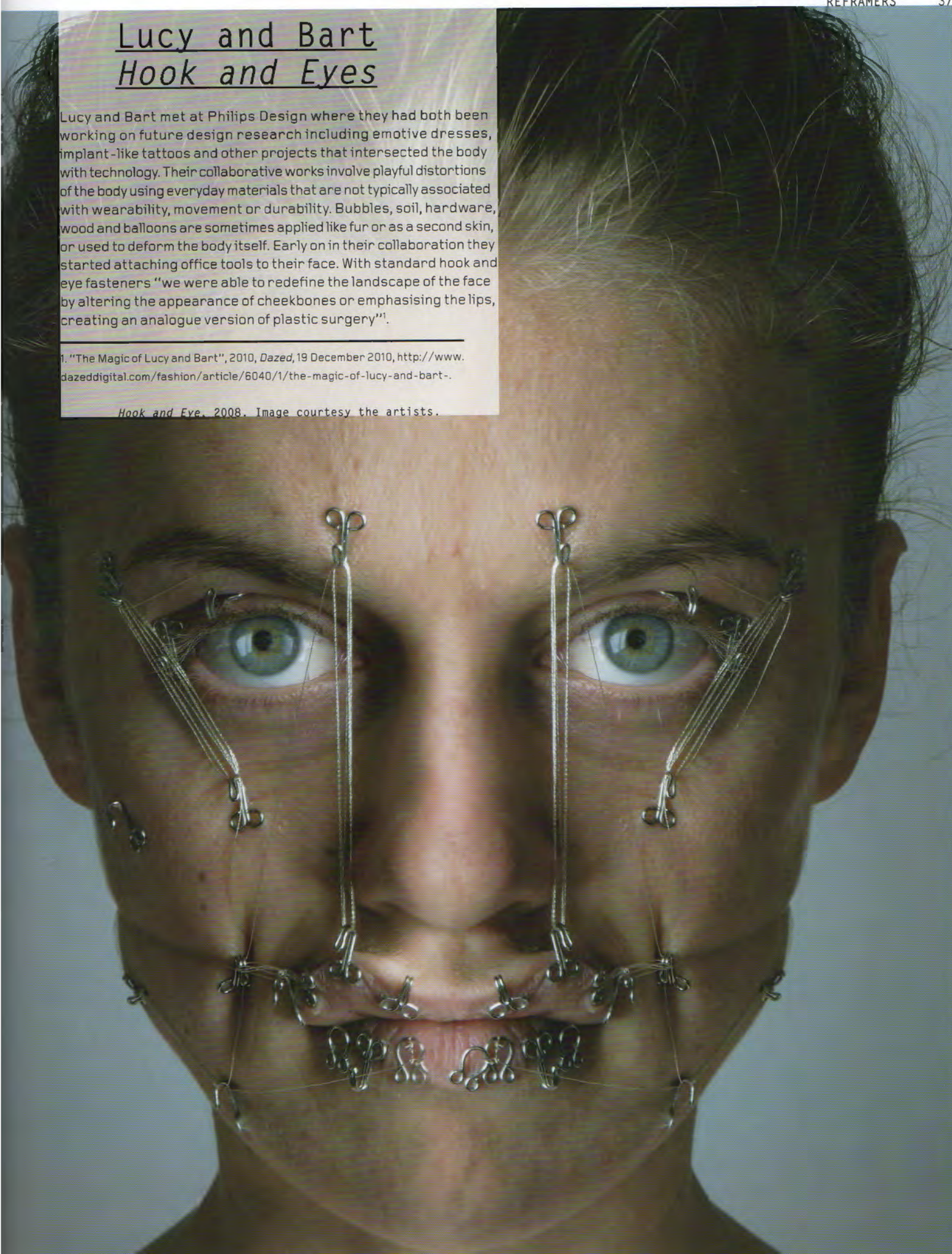
Emoter, detail, 2000. Mixed media image, 124x91x10cm; ladder, 69x61x48cm; cable, 53m. Collection of Andrea Nasher. Image courtesy Ace Gallery.

Lucy and Bart Hook and Eyes

Lucy and Bart met at Philips Design where they had both been working on future design research including emotive dresses, implant-like tattoos and other projects that intersected the body with technology. Their collaborative works involve playful distortions of the body using everyday materials that are not typically associated with wearability, movement or durability. Bubbles, soil, hardware, wood and balloons are sometimes applied like fur or as a second skin, or used to deform the body itself. Early on in their collaboration they started attaching office tools to their face. With standard hook and eye fasteners "we were able to redefine the landscape of the face by altering the appearance of cheekbones or emphasising the lips, creating an analogue version of plastic surgery"¹.

1. "The Magic of Lucy and Bart", 2010, *Dazed*, 19 December 2010, <http://www.dazeddigital.com/fashion/article/6040/1/the-magic-of-lucy-and-bart->.

Hook and Eye, 2008. Image courtesy the artists.





Lucy and Bart
Germination Day
One and Day Eight

Lucy and Bart's home-grown grass suit is an eight day creation that germinated in a children's swimming pool in their living room. The weight of such a garment would put our pressure-sensitive mechanoreceptors and our thermal receptors into overdrive. But Lucy and Bart had another agenda for making the suit, one that might push touch into the background. They were brainstorming on the concept of biological self-replicating clothing that grows from the body. Part human, part animal, it could be grown to achieve varying thickness, density and viscosity and it would live and breathe with us. "Why kill an animal and re-form the fur into a shape? Why not have the animal already shaped to your body, have it living and breathing around you, like shoes."¹

1. Regine, "Interview with Bart Hess", 2008, *we make money not art*, 8 December 2010, <http://we-make-money-not-art.com/archives/2008/04/-found-little-info-about.php>.



Diller Scofidio + Renfro

Elizabeth Diller describes *Blur*'s anti-vision stance:

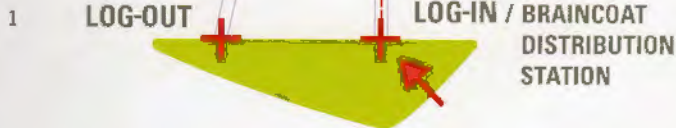
Typically, vision dominates our behaviour in public space and establishes the basis of social relations. We use vision to assess identity; a quick glimpse of another person allows us to identify his/her gender, age, race, and social class. Normally, this visual framework precedes any social interaction. Within the cloud, however, such rapid visual identification is not possible. The foggy atmosphere, combined with visitors in identical raincoats, produces a condition of anonymity.¹

With vision hampered, Diller Scofidio + Renfro searched for a way to allow technology to convey a whole range of human responses. They settled upon the Braincoat, a smart prosthetic device that would promote social interaction and intimacy for wearers within the fog. Unfortunately this portion of the project, designed, in collaboration with Ear Studio Inc., remained unrealised.

Had it been realised it would have worked like this: visitors enter at the log-in station and fill out an evocative questionnaire designed in collaboration with the fiction writer Douglas Cooper. The designers created several versions of how the questions and answers would be administered, from a series of physical gates to hand held devices or input into the Braincoat itself. Visitors receive the Braincoat at the log-in station as well. Based on the input information, the Braincoats go to work: they either blush with a diffused glow when approaching strangers have an affinity or they make an electronic noise—a ping, or when the affinity is significant, a patch of the coat might vibrate, providing tactile stimulation. External elements would react as well. Vertical columns would display LED messages—either visitor responses, or responses from Web-based visitors striving to interact.²

1. Diller, Elizabeth and Ricardo Scofidio, *Blur: The Making of Nothing*, New York: Harry N Abrams, 2002, p. 209.

2. Diller and Scofidio, *Blur: The Making of Nothing*.



1 *Blur Building, Braincoat Login Logout: Braincoat Distribution Station.* Exposition Pavilion, Swiss Expo, Yverdon-les-Bains, Switzerland, 2002. Image courtesy Diller Scofidio + Renfro.

2 *Blur Building, 2002.* Exposition Pavilion, Swiss Expo, Yverdon-les-Bains, Switzerland. Image courtesy Diller Scofidio + Renfro.

Rebecca Horn

Rebecca Horn's body extensions involve mystical rituals, like speaking to your own breasts or inhaling them, slipping across a field in a trance with your body doubled in height, sweeping along the floor with fantastical witch-like fingers or drawing feverishly with your face. Though the performer remains intact, the prosthetic acts upon the body by binding it, centring it, or hindering motion even as they facilitate a new motion.

Made between 1970 and 1972 these pieces and performances followed on the heels of Horn's serious illness and yearlong convalescence in a sanatorium as a result of lung poisoning related to her art. No wonder the work has dual association, seeming at once nurturing and toxic, peaceful and foreboding, liberating and torturous. Horn's contraptions and performances extend the body into space, allowing the wearer to meet sky, walls and floor in ways that are ordinarily impossible. At the same time they are encumbrances, changing the pace, focus and body posture of the wearer.

Cornucopia, Séance for two Breasts gives Horn self-nurturing capability. This new body feature creates a loop much like the one between the nose and mouth. One can talk to the breasts, breath life to them, and receive back from them their maternal power. But the piece has a dark side too, adding an external black lung to the body. Horn created many sketches for this project. Some of them appear to connect mouth to breast by allowing the mouth to fill the breasts up with a liquid, others create a sensory interaction between two wearers.

Horn describes the *Unicorn* performance thus: "nothing could stop her trance-like journey: in competition with every tree and cloud in sight..."¹ The performer walks through the countryside naked except for some bandage-like strips around her torso and a tall horn strapped onto her chin. Extended up into space and down through the head, the mythical hybrid feels the pull of gravity and must concentrate on balance, pace and head position. Doing so only increases the mythical power of the performance.

Finger Gloves are prosthetic extenders that deny the hand intimacy and enable more remote touch, allowing one to become a part of the architecture.

Pencil Mask substitutes the head for the hand, turning the face into a drawing instrument. Touch and sight are now intermingled. Small pencils are attached to a grid of thick black strips that encircle the face, both binding the head and liberating it into its tool-like capacity. Rapid head swings in the performance create a scratchy drawing with light and dark areas that build up to form a portrait of the artist.

1. "Unicorn", Tate Online, November 2010, <http://www.tate.org.uk/servlet/ViewWork?workid=22&tabview=work>.

Pencil Mask/Bleistiftmaske, 1972. Fabric, 21 pencils, dimensions variable. Film still from *Performances II*. © 2010 Artists Rights Society (ARS), New York / VG Bild-Kunst, Bonn.





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- 1 *Unicorn*, 1970. Fabric, wood, dimensions variable. © 2010 Artists Rights Society (ARS), New York / VG Bild-Kunst, Bonn.
- 2 *Finger Gloves*, 1972. Performance, fabric, balsa wood. Length: 70cm. © 2010 Artists Rights Society (ARS), New York / VG Bild-Kunst, Bonn.
- 3 *Cornucopia, Séance für zwei Brüste*, 1970. Film still. © 2010 Artists Rights Society (ARS), New York / VG Bild-Kunst, Bonn.



1



2

Janine Antoni

Janine Antoni's sense-based work gives the spectator an entirely fresh view of the body's physicality, patterns, and daily functions and materialises the ephemeral acts of seeing, sleeping, washing and urinating. As discussed in the Introduction, *Mortar and Pestle* astonishes with its boundary-crossing act of allowing two sensory apparatus to meet. Residing a mere few inches from each other on the face, an individual's eyes and mouth can never meet. Perhaps that is why it is so hard to look at. But Antoni wanted to "know the taste of his vision"—in this case her husband's. The moment is captured in extreme close-up and then taken in by the eye, making the image all the more "eye-opening", and the connection and contact all the more impossible to truly know. The tongue has got the upper hand for once, though its pursuit is futile. The tongue can know the surface of the eye, but vision is happening in the brain. Nonetheless capturing that moment when tongue and eye meet begs the viewer to conjure up other acts of intimacy and interactions that the senses do not ordinarily experience.

Like *Mortar and Pestle*, *Loving Care* relies on substitution, allowing one body part to do the typical work of another. In this case Antoni empowers the head and hair—normally not involved in major physical acts (with the exception of head stands, head banging, and heading a ball)—to create a giant painting across the entire floor of a gallery using *Loving Care* hair dye. Though this act is often discussed in relation to women's work, feminism,

patriarchy and the history of art, the process has a major effect on the senses. The typically inert hair becomes the initiator of touch, instead of the receiver. Touch brings the head down to the floor, the eyes and nose in proximity to the ground and the body into a nearly prostate position.

Sleep and dreams are the media in *Slumber*. By night the artist sleeps, allowing her dreams to be plotted via polysomnograph. By day she weaves thin strips of her nightgown into the recorded pattern of her dreams. Then by night she uses the weaving as a blanket. The whole awake/sleep cycle becomes a tactile datascape, as Antoni draws connections between the artist's hand and the plotter, dream data and the warp and weft of the weaving. All of this takes place within the confines of the gallery, demystifying the artist, her private time, and her mind.

①

Slumber, 1993. Performance with loom, yarn, bed, nightgown, PSG machine and artist's REM reading, variable dimensions. Image courtesy the artist and Luhring Augustine, New York.

②

Loving Care, 1993. Performance with *Loving Care* hair dye Natural Black dimensions variable. Photographed by Prudence Cumming Associates at Anthony d'Offay Gallery, London, 1993. Image courtesy the artist and Luhring Augustine, New York.

XSense

One in 200 people experiences synesthesia—the ability to see colour associated with numbers or sounds, to taste shapes, or in certain instances to feel sounds. Such people—‘creative types’ are seven times more likely to have it than the general population—exist somewhere between the reality of what we all perceive, and some alternate realm in which they alone are sensing information inaccessible to the rest of us. Initially cross-wiring in the brain was thought to be the culprit. Now scientists label it cross-activation, or the ability of neighbouring brain regions—or even distant ones—to cross-talk due to chemical imbalances that reduces normal inhibitions.¹

XSense is an interactive helmet that crosses sight with hearing, immersing the wearer in the world of the synesthete. Sounds are translated into an array of 64 microchip controlled LED's that light up in three different colours. Vision is controlled by a “sonar” system, an array of ultrasonic distance sensors that create stereo sound within the helmet, allowing the wearer to interpret the sounds spatially and create a mental map of the environment.

1. Ramachandran, VS and EM Hubbard, “Hearing Colors, Tasting Shapes”, May 2003, *Scientific American*, Scopus, February 2010, <http://www.scopus.com/inward/record.url?eid=2-s2.0-0037513462&partnerID=40&md5=2e3885ed5e6735dc6af31bb6ebd2f434>.

XSense, Adam Danielsson, Per Nilsson, Melvin Ochsmann, Koen Van Mol, Robert Winters, Tamara Klein, Andreas Nertlinge, Madrid, 2006 and Malmö, 2005. Image courtesy the artists.

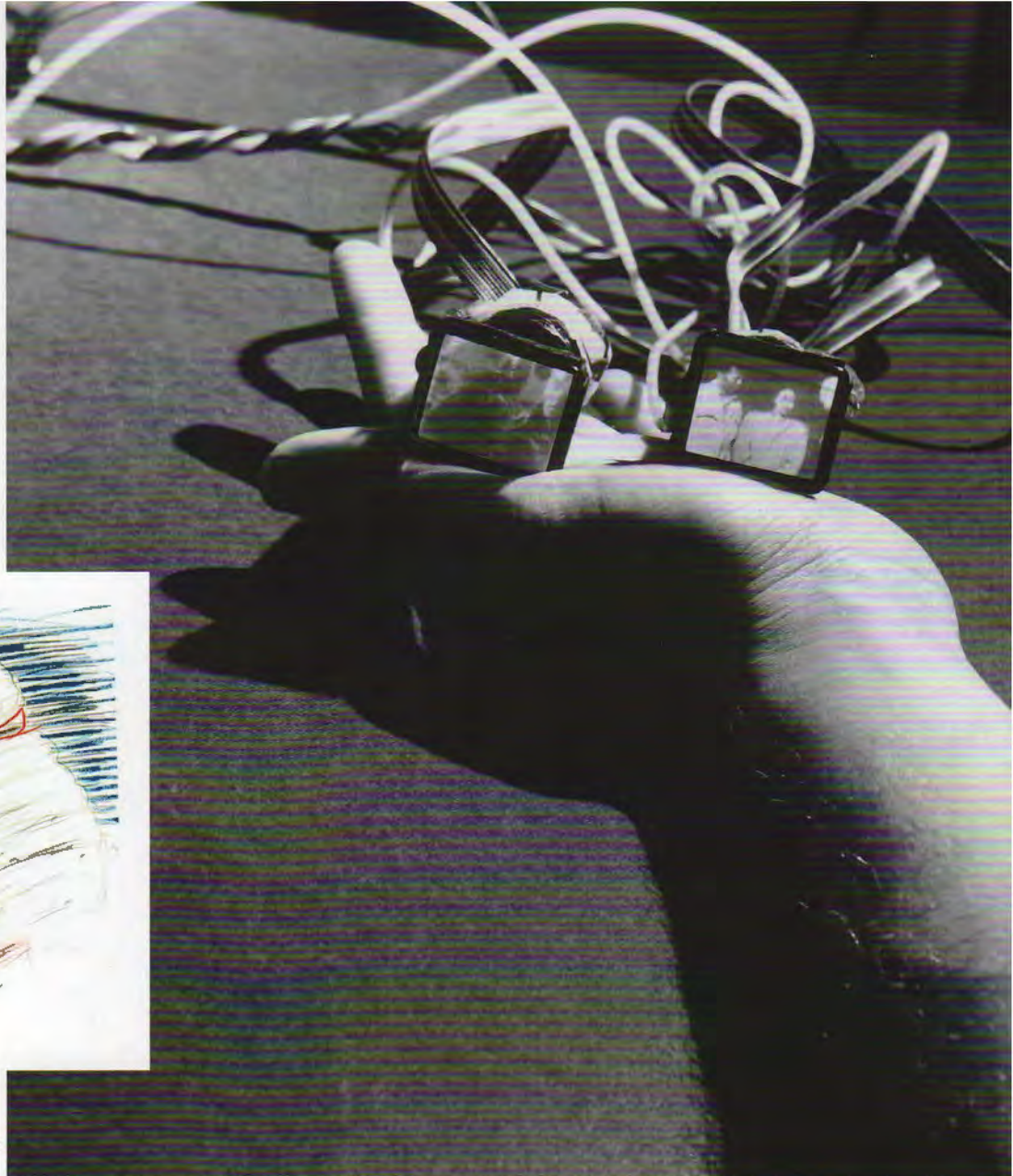


Arijana Kajfes

Monochrome avoids hi-definition and augmentation for the sake of low-resolution vision. The portable helmet and finger component sends the eye colour information only. When the finger points at a space or object, three light sensors—red, green and blue—feed back colour information to two tricoloured (RGB) light diodes that emit two beams of light straight into the wearer's eyes.¹ In this minimal visual field there is no context, no cultural association, and no information saturation. There are only photons of light.

1. *Touching the Invisible: Smart Studio*, ed. Institute, Interactive. Print.

Monochrome, 2004. Photo Tatyana Krol. Image courtesy the artist.



2

Alfons Schilling

Alfons Schilling's *Vision Machines* (*Sehmaschinen*) are not what they appear to be: scientific devices that change or augment vision or "organ crutches" as Schilling calls them. In fact they are the opposite: non-scientific, perception-bending, environment-transforming portals to a world that exists and does not exist simultaneously. What one sees through Schilling's machines is completely new and contains unfamiliar organisational structures. Nothing is as one remembers it, yet there are hints of familiar forms and colours. So independent of the coherent retinal image are the sights he provides, that the retina is of no use in translating them. They are credible ephemeral alternates to the environmental reality we consider "real", credible enough to undermine reality. Schilling, like any good perceptual conceptualist, is out to free the mind. In a statement from the book *Eyes, Lies and Illusions* Schilling explains:

I have come to a point in my art where all the images that I produce exist only in the brain. They cannot be recognised with the retina; the information is processed further back in the brain. In fact by ordinary monocular vision these images are not perceptible. This is very different from how in the past an image has been depicted. I am now

dealing directly with the structure of the brain and how the outside world is perceived. I have taken my art from the outer eyes to the inner eye. Such images are not realised through light. In a sense they are objects of the dark, mental constructs that become visible purely through their spatial coherence.¹

In 1973, just two years prior to this visionary statement, Schilling declared war on the "tyranny of Cyclopic sight"². This included typical binocular vision, in which two images from eyes approximately two and one-half inches apart are fused together by the brain. He created the *Video-Head-Set*, considered one of the earliest projects to prefigure virtual reality. It consisted of two small monitors placed directly in front of the eyes, each one attached to a remote camera, and each one capturing a different view of the space—a more radical view than the ordinary set-up of the eyes could ever see. Schilling recognised that he could even allow one eye to view the space, and one eye to look back at himself, or allow the eyes to be "switched, reversed, or manipulated" and that the brain would fuse this alternative reality.³ Though on a radically different scale, and with different materials and tools, Schilling was engaging in explorations related to those of Peter Campus. Both were tweaking notions of time, space and motion, and turning the camera upon spectator.



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The *Sehmaschinen* were to be used on the go. *Dunkelkammerhut* is a wearable camera obscura that mounts on the head, and turns the wearer into a walking dark room. Though camera obscuras were regularly brought out into the landscape, notably by Johannes Kepler, who was the first to coin the term, Schilling was probably the only one to move with the camera obscura through space. This would change the rules of how one perceives entirely. One would have to move slowly and deliberately, since the image of the landscape would be projected upside down and flipped. In time, though, the brain would learn to deal with this version of the world, just as it becomes accustomed to Carsten Höller's *Upside Down Glasses*, but that is not Schilling's point.

Antelope inverts everything using prisms. What was left becomes right, what was up is now down, what was far appears near and what is behind appears forward. This may construct a new mental space, but careful—you might fall up a cliff. To slow things down a bit, Schilling added a more practical component to *Kleines Rad*—a partial wheel that surrounds the head and maintains orientation and distance from adjacent objects.

Kleines Rad reverses left and right, and front and back. One progresses forward into the world one left behind. *Kleiner Vogel* increases the distance between the eyes by ten times to 60 cm, giving the wearer the perception of a giant.

1. Mannoni, Laurent, Nekes, Werner, and Warner, Marina, *Eyes, Lies and Illusions: The Art of Deception*, London: Lund Humphries Publishers, 2004, p. 182.

2. Donlanova, Lenka, "Don't Believe Everything You Hear: Alfons Schilling", *Umelec* 4, 2007.

3. Schilling, Alfons, *Electronicspaces: Excerpts from a Conversation with Alfons Schilling*, 1977, June 2009, www.vasulka.org/archive/Artists6/Schilling.../ElectronicSpaces,etc.pdf.

1 *Video-Head-Set*, 1973. © Alfons Schilling. Image courtesy the artist.

2 Parts of the *Video-Head-Set*, 1973. © Alfons Schilling. Image courtesy the artist.

3 *Kleines Rad*, 1978. Wood construction, prisms, 210cm (top); Prism/Raumumkehrer used in *Kleines Rad*, 1974 (bottom). © Alfons Schilling. Images courtesy the artist.

4 *Dunkelkammerhut*, 1984. Canyonlands, Utah, 1986. © Alfons Schilling. Image courtesy the artist.

1



- 1 *Antelope*, 1984. © Alfons Schilling. Image courtesy the artist.
- 2 *Kleiner Vogel*, 1978. Wood construction and mirror.
© Alfons Schilling. Image courtesy the artist.

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