

### Mobile and locative media

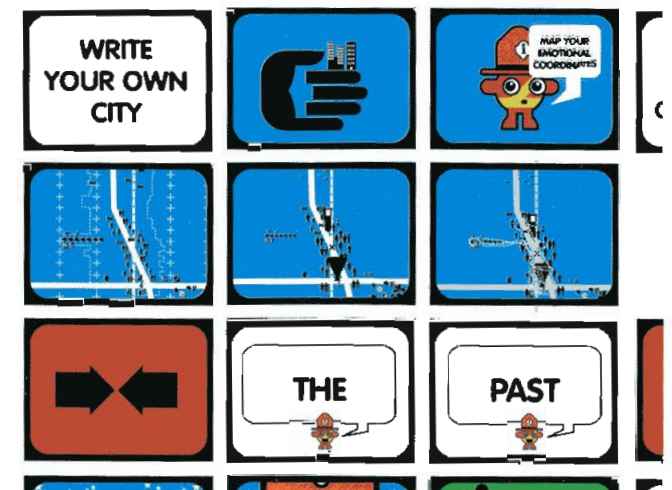
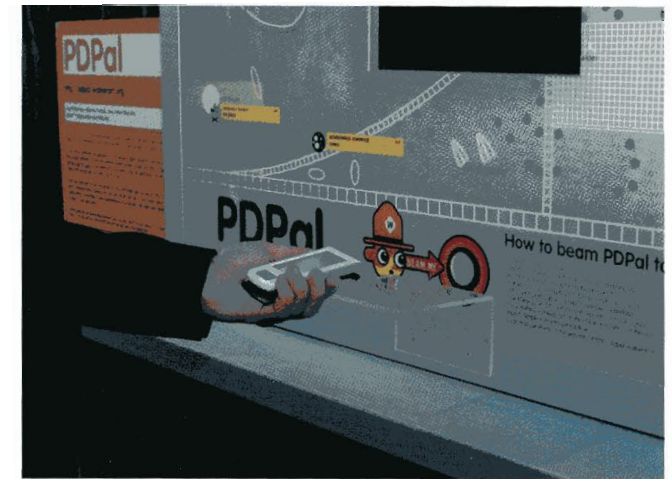
In the past few years, wireless networks and the use of 'nomadic devices' such as mobile phones and PDAs have blurred the boundary between the non-local (or non-site-specific) and the locative (or site-specific). Locative media use a location in public space as a 'canvas' for implementing an art project and have become one of the most active and fast-growing areas in new media art. Camera and video mobile phones, PDAs such as Blackberries, and iPods have become new platforms for cultural production, providing an interface through which users can participate in networked public projects, as well as the formation of ad hoc communities. One example is the smart mob, a term coined by Howard Rheingold in his 2002 book *Smart Mobs: The Next Social Revolution* to describe the self-structuring social organizations supported by wireless digital technologies. A specialized, although mostly apolitical form of the smart mob is the flash mob, a large group of people who organize themselves through mobile messaging, suddenly assemble in a public space, engage in a more or less banal activity for a brief period of time, and then quickly disperse.

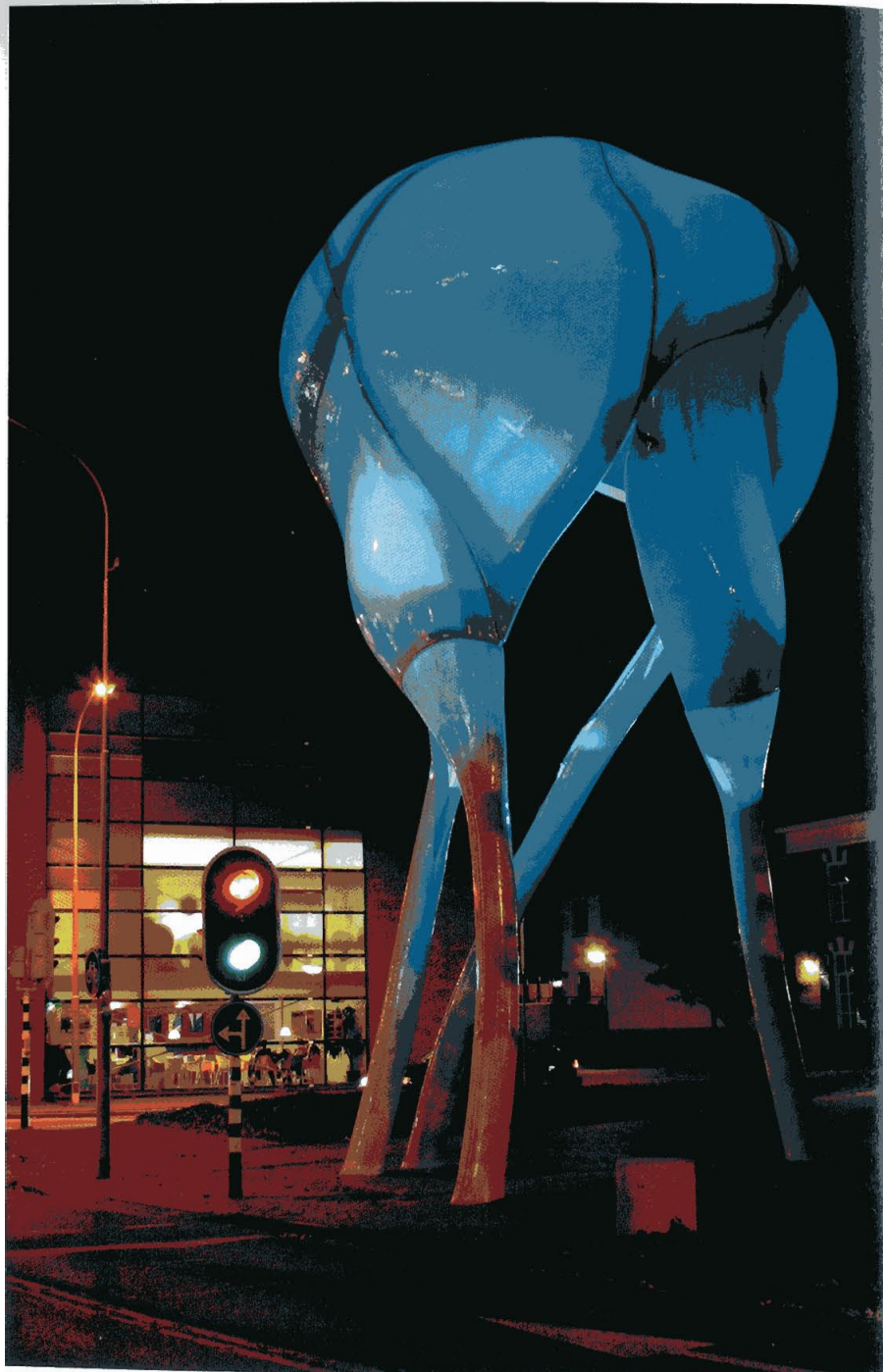
Mobile locative media are not only a technological format but also a concept and theme that have been increasingly explored by artists. Electronic networks in general and mobile devices in particular have brought about formal redefinitions of what we understand as 'public space'; more specifically, they have opened up new sites for artistic intervention, broadening our concept of so-called 'public art' – a term that has been traditionally used for art displayed in public spaces outside of a designated art context or for public performative events, from graffiti to site-specific interventions by art movements such as Fluxus or the Situationist International. New media art in the public space of networks – be it net art or art involving mobile media such as mobile phones – can be understood as a new form of public art. Compared to more traditional forms of public art practice, these artworks can be both trans-local (connecting people across geographical locations) and site-specific, enhancing or augmenting physical space with information that can be deposited and/or retrieved. Mobile locative media have found a broad spectrum of use in artistic practice that ranges from the enhancement of urban spaces or landscapes with information, and the creation of participatory platforms of production, to critical engagement with the cultural impact of mobile technologies, and enhancement of the public's agency.



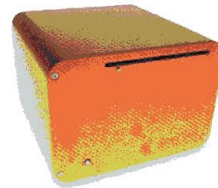
186. Marina Zurkow, Scott Paterson and Julian Bleecker, *PDPal*, 2003

A number of locative media projects have focused on mapping existing physical spaces and architectures. *PDPal* (2003) by Marina Zurkow, Scott Paterson and Julian Bleecker, for example, is a mapping tool (a Web interface and application downloadable to one's PDA) for recording personal experiences of public space, more specifically the Times Square area in New York City and the Twin Cities, Minnesota. Users create maps by marking locations with graphic symbols and giving them attributes and ratings. While the categories for mapping are relatively structured, the prescription of certain categories or meta-tags also makes it easier to map contributions more effectively. *PDPal* is inspired by





## wifi.ArtCache



188. (above) **Julian Bleecker**, *WiFi.ArtCache*, 2003 The art objects (Flash animations) accessible through the cache have been programmed to change their appearance and 'behaviours' based on several criteria, including their proximity to the cache (whether they are in or out of range), the number of times that a particular art object has been downloaded, the number of active art objects in range of the node, and the length of time an object has been downloaded and out of the node.

187. (opposite) **Q.S. Serafijn in collaboration with Lars Spuybroek**, *D-tower*, 1998–2004 The physical element of the project, a 36-foot tower designed by NOX, is an illuminated epoxy structure of geometries which have been computer-generated (through CNC milling). The building can be lit up in four colours, which correspond to the four emotions recorded by the project – green for hate, red for love, blue for fear, and yellow for happiness. Driving through the city, people can see which emotion is most deeply felt on that particular day.

the idea of emotional geographies and the concept of psychogeography – the study of the effects of the geographical environment on individuals' emotions and behaviours – which was developed by the Situationists, a political and artistic movement that emerged in the late 1950s. A different form of mapping unfolds in Q.S. Serafijn and Lars Spuybroek's *D-tower* (1998–2004), an art piece commissioned by the Dutch city of Doetinchem and co-developed by V2\_lab. *D-tower* maps the emotions of the city's inhabitants in a more specific way than *PDPal* by concentrating on happiness, love, fear, and hate. In the project, which has three parts – a physical tower, a questionnaire, and a website – human values and feelings become networked entities that also manifest themselves in physical space through colour. Each of the participants receives four questions every other day and the answers, together with the postal codes of participants, are used to create graphical maps showing where in the city people are most scared or in love, and for what reason. In different ways, these mapping projects create a virtual, public repository for information that supplements physical sites. They consist of shared information resources that are collectively built by a more or less well-defined community and involve boundaries established through rules and mechanisms of access. In the case of *PDPal*, the information can also be accessed at the physical site itself, and in *D-tower* a physical structure is transformed through the virtual repository. Both strive to create a new awareness of the urban landscape as a space inscribed by human perception and emotion.

Locative media projects have also explored location-based storytelling and new approaches to landscape. Julian Bleecker's (b. 1966) *WiFi.ArtCache* (2003) – an access point for digital art consisting of a free-floating WiFi node which has been deliberately disconnected from the Internet – investigates the possibilities of wireless, location-based narrative and the production of space itself as the user needs to be within physical range of the node to retrieve information. The project thus demarcates an invisible yet physical space for art. Once people are close enough to the cache, they can download Macromedia Flash animations created by artists to their own WiFi-enabled devices, such as PDAs and laptops. Whereas Bleecker's cache uses a specific location as a form of wireless art repository, Teri Rueb's (b. 1968) *Core Sample* (2007) augments a location with an abstract narration of its history. Rueb's project offers an insight into Spectacle Island in Boston Harbor, which has a multifaceted history of urban development. It has been the site of casinos, hotels, and a city dump, but in the early

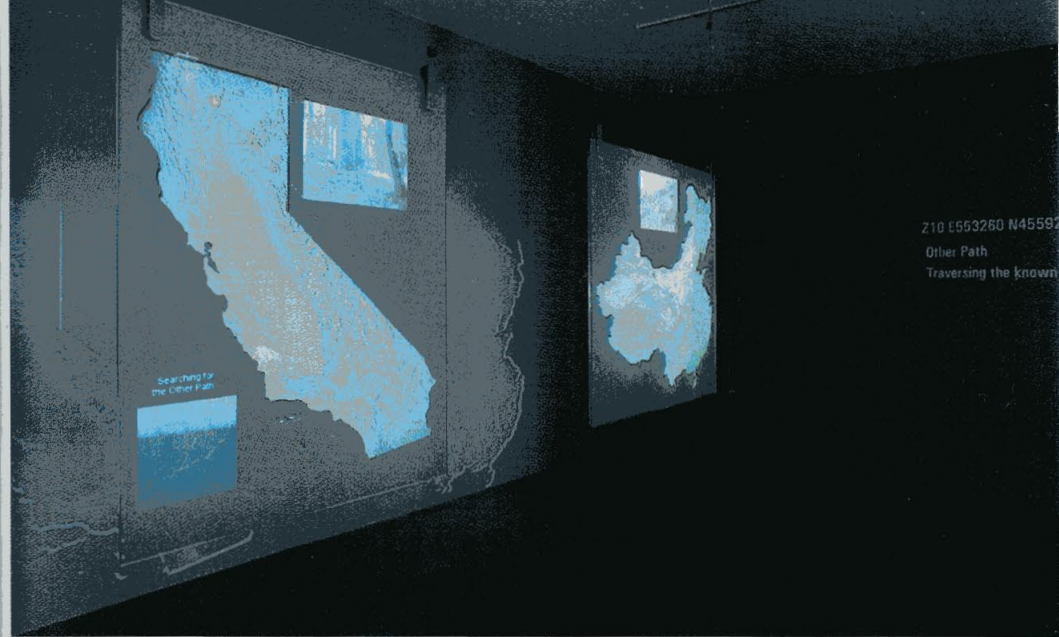


189. (above) Teri Rueb,  
*Core Sample*, 2007

190. (opposite) C5, *Landscape Initiative*, 2001–present. Using the C5 GPS Media Player (in the bottom image), the project's online component, visitors to the website can access the GPS track logs of each C5 member's route in the different manifestations of the project, view associated media documentation (photographs/video), and investigate multiple track logs to compare the landscapes. The GPS in itself has created new forms of relationships with the landscape, firmly positioning an individual or object in relation to a specific location while remaining a virtual data set. The Media Player's virtual track logs and overlapping paths form their own kind of landscape, which is rooted in a personal interaction with the actual landscape but translates into a virtual set of data that becomes a relational database, a potential index of connections. The online project suggests a trajectory from personal experience and live performance to a data representation of this very experience and the possible contexts for understanding it.

1990s it was given a makeover: materials excavated during the construction of a tunnel were used to create additional land, and sea defences were put in place. *Core Sample* uses GPS to create a factual and fictional interactive audio narrative which mixes natural and processed sounds with voices of former residents to tell a unique story of the island and highlight its natural soundscape.

The use of the Global Positioning System (GPS) and mobile technologies for new experiences of landscape takes a very different form in the *Landscape Initiative* (2001–present) by the San Jose-based art group C5 (f. 1997). In its multiple manifestations, *Landscape Initiative* straddles conceptual, performance, and land art, as well as research, business, and exploratory adventure. The project consists of three parts – *The Analogous Landscape*, *The Perfect View*, and *The Other Path* – for which the group has undertaken massive performative expeditions all over the world. For *The Analogous Landscape*, members of the C5 team climbed mountains such as Mt Whitney in California, Mt Shasta in the Cascade Range of North America, and Mt Fuji in Japan. The respective journeys were tracked by means of GPS and Digital Elevation Mapping (DEM), with the goal of establishing analogies between the journeys through the different terrains. For *The Perfect View*, C5 asked members of the geo-caching community – a worldwide network of outdoor enthusiasts who hide and seek containers or 'geo-caches' using GPS and other navigational techniques – to recommend locations that they experienced as sublime. One of the C5 members then went on a motorcycle ride around the continental US and revisited the places according to their original coordinates. The sites are documented in triptychs that show the respective location as a panoramic photograph, juxtaposed with



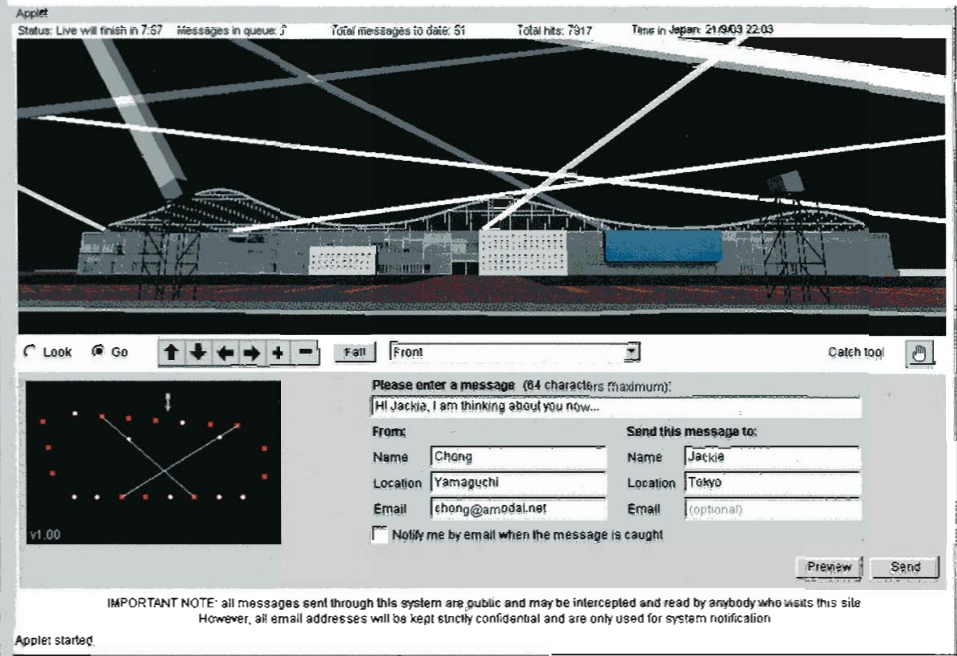
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Other Path  
Traversing the known



191. Usman Haque, *Sky Ear*, 2004

an aerial satellite image and a rendering using USGS (United States Geographical Survey) data as its source. The goal of *The Other Path* was to accurately track the Great Wall of China and then use pattern-matching procedures to find an analogous 'significant path' in the US. In the digital age, our knowledge of the earth and landscape is largely shaped by GIS (Geographic Information Systems), together with personal experiences, which are by nature locative and limited. Representation increasingly shifts from a depiction of reality toward a visualization of data; and data has become the mediating agent between us and our surrounding landscape. *Landscape Initiative* explores the status of our relationship to landscape in a networked data world.

Mobile devices are also frequently used to give visual expression to information or data that could otherwise not be directly perceived. *Sky Ear* (2004) by Usman Haque (b. 1971) represents an interesting approach to the visualization and sonification of the electromagnetic spectrum. Haque visualizes this usually intangible force through a 'cloud' of helium balloons equipped with infra-red sensors and LEDs, which, respectively, measure the electromagnetic environment (influenced by factors such as weather and mobile phone usage) and change the colour of the balloons. Spectators on the ground could also cause variations in colour by calling the auto-answer mobiles in the balloon cloud and listening to the sounds of the sky.

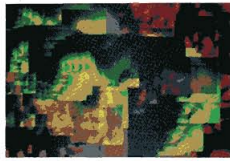
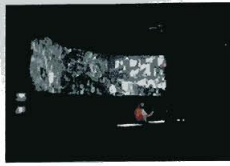


192. (above and below) Rafael Lozano-Hemmer, *Amodal Suspension*, 2003



In Rafael Lozano-Hemmer's *Amodal Suspension* (2003), a large-scale interactive installation developed for the opening of the Yamaguchi Center for Arts and Media (YCAM) in Japan (and a continuation of his *Relational Architecture* projects), users' text messages both gain visual form and control visual output. Twenty robotically controlled searchlights were installed outside the YCAM centre to visualize text messages, which people could send to each other by using their mobile phone or a Web interface. The messages were then encoded as unique sequences of flashes by the searchlights, creating a giant communication switchboard in the sky and transforming the materiality of text messaging. These unique light sequences continued to be circulated until the messages were 'caught' or read using a mobile phone or the 3D Web interface.

As both of the previous projects show, mobile devices can become an impromptu interface and a vehicle to create or participate in an artwork. Giselle Beiguelman (b. 1962) has used this form of interfacing in her video projects *Sometimes Always* and *Sometimes Never* (2005), which consist of images shot on mobiles by visitors to the exhibition space. In the gallery, the audience can also use a keyboard and mouse to edit, in real time, the order and position of the frames on the screen and to impose coloured filters



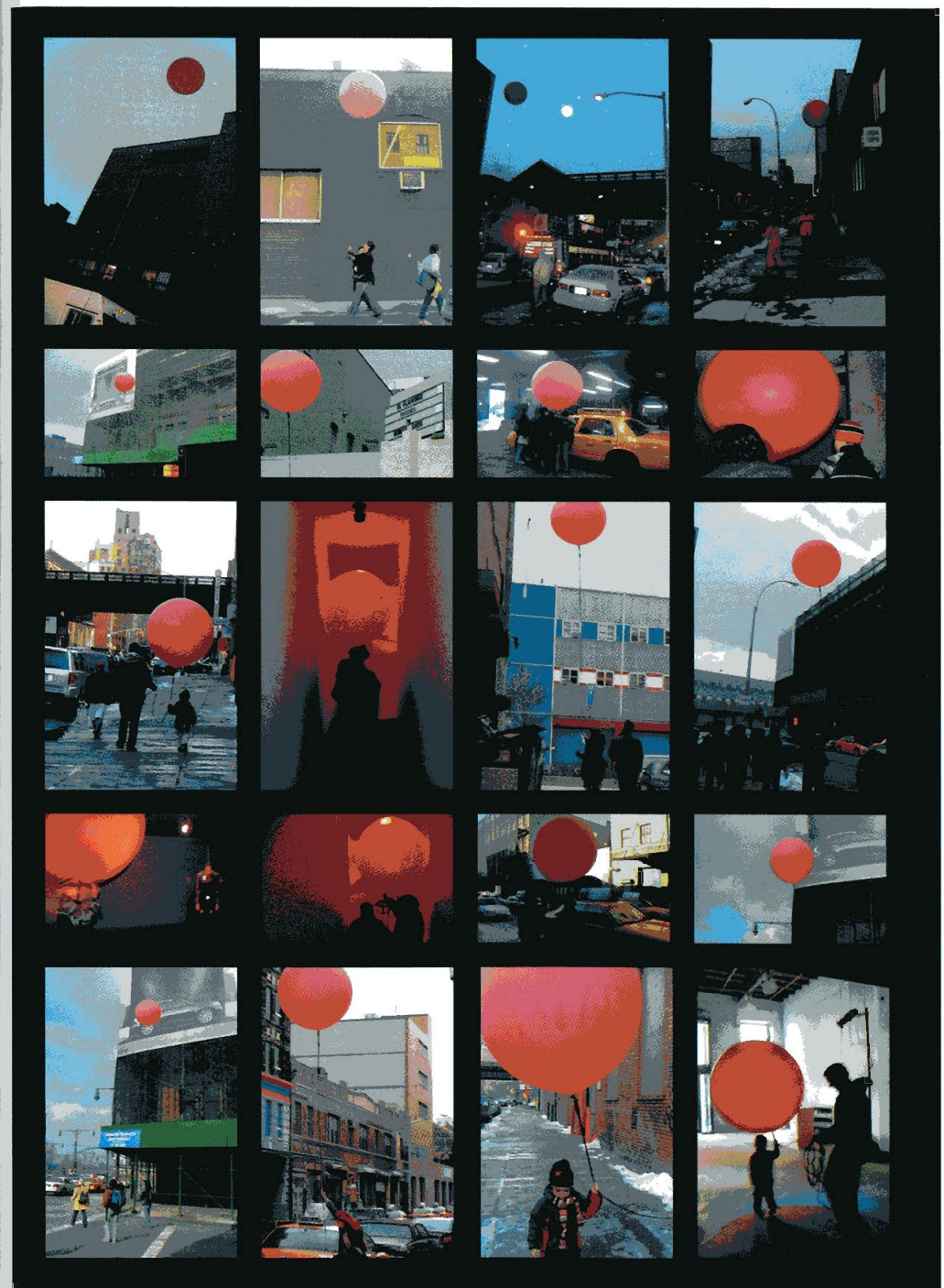
193. **Giselle Beiguelman**,  
*Sometimes Always* (top left)  
and *Sometimes Never*  
(above and right), 2005

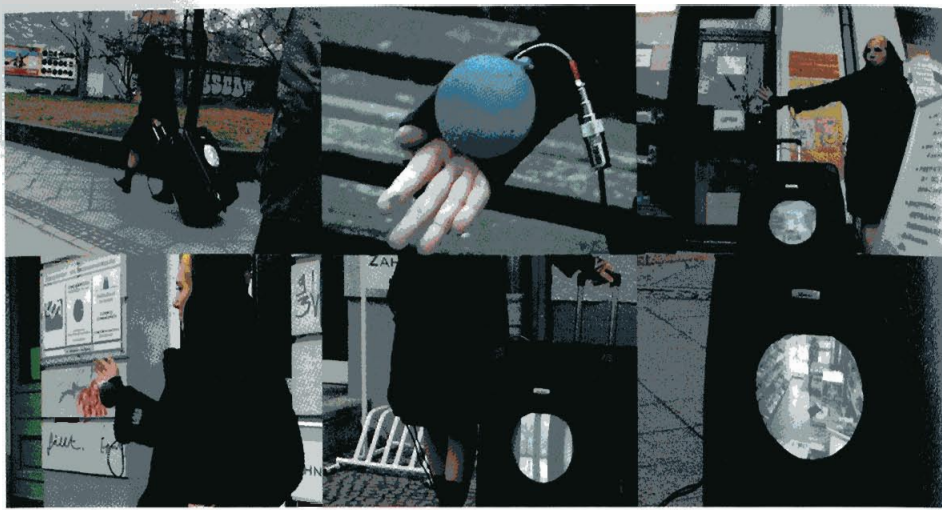


on the images. In *Sometimes Always*, the result is a dynamic mosaic palimpsest, while *Sometimes Never* creates unstable saturated palimpsests – the added colour saturation triggers a process of erasing, and no action can ever be repeated. Together, they create a (de)generative video that is composed and decomposed.

Mobile technologies ideally provide new platforms for communication and networking, but they also potentially allow for users to be monitored and tracked. The issues surrounding privacy and identity that emerge from tracking and surveillance capabilities have been critically explored by many artists and media practitioners. Artist Jenny Marketou (b. 1954) has created a series of projects – among them *Flying Spy Potatoes* (2005) and *99 Red Balloons: Be Careful Who Sees You When You Dream* (2005) – that involve large helium-filled balloons equipped with wireless cameras and address the darker aspects of surveillance with aesthetic playfulness. The project series is inspired by the German pop singer Nena's song '99 Red Balloons' from the early '80s, in which a catastrophic war erupts when army generals send planes to intercept a mass of unidentified objects (balloons). The installation also references pre-aviation 'reconnaissance balloons', such as those used in the American Civil War. The concept of play entails possibilities but also risks, rules, and limits, with the camera eye as 'spy' undermining the connotations of freedom suggested by the game. In a playful way, Marketou's project raises serious issues about the relationship between the recorded image and the spectator, surveillance, and the contemporary society of spectacle. The project series addresses the technologi-

194 (opposite) **Jenny Marketou**, *Flying Spy Potatoes*, 2005. Within a gallery environment, the inflated balloons are attached to the floor and floating, so that the public is moving through a red forest. The video cameras hidden inside the balloons continuously capture the surroundings, and visitors' movements through the installation are recorded as ephemera, traces, forms and patterns, which are broadcast live on TV monitors inside the exhibition space. In the live action street game part of the project, visitors are invited to take balloons on a walk, thereby building a connection between the exhibition space and its context and becoming both surveillant and object of surveillance.





195. (top) **Michelle Teran**, *Life: A User's Manual (Berlin Walk)*, 2003. This project subverts existing surveillance tactics by transmitting camera footage to the public, thus commenting on the complexity of personal, cultural, social and physical boundaries and the act of crossing them.

196. (bottom) **Michelle Teran**, *Life: A User's Manual (Linz Walk)*, 2005.

cally networked condition of contemporary society, the dynamic possibilities of doing and looking, and the role of technologies of surveillance and recording in art and culture.

In Michelle Teran's (b. 1966) series of public performances, *Life: A User's Manual* (2003–5), the use of surveillance cameras in contemporary urban settings is explored in the context of boundaries between public and private space. The artist pushes a monitor around city streets in a shopping cart and, using a consumer-model video scanner, broadcasts footage from wireless surveillance cameras in public and private places that transmit on

the easily intercepted 2.4 Ghz frequency band. Passers-by can see these camera views of the city and its inhabitants on the monitor in the cart. The project takes its title from a novel by Georges Perec, in which he metaphorically removes the wall of a Paris apartment building and tells the stories of each apartment and its inhabitants.

Both Marketou and Teran explore the topic of surveillance in predominantly aesthetic and conceptual terms. The issues they address are also reoccurring themes in art activism, which frequently makes use of mobile technologies to critique their implications or enhance the public's social and political agency or involvement. Today's digital mobile devices and locative media have certainly opened up a whole set of new possibilities for activist art, but mobility has always been an important factor in the realm of tactical media.

In the late 1980s, artist Krzysztof Wodiczko (b. 1943) created a series of *Homeless Vehicles* (1988–9), a mobile shelter reminiscent of a shopping cart that provided homeless people with a place to live and a 'work environment' for collecting cans and bottles for resale. Ricardo Miranda Zúñiga's (b. 1971) *Vagamundo* (2002) and *The Public Broadcast Cart* (2003–6) can be seen as extensions of this type of project for the digital age, giving a voice to marginalized groups or enhancing the agency of the public. *Vagamundo* is a mobile cart and online project featuring a video game that can be played by pedestrians or online and raises awareness of the predicament of undocumented immigrant labourers in New York City. *The Public Broadcast Cart* – a shopping cart equipped with a wireless laptop, miniFM transmitter, microphone, speakers, and a mixer – reverses roles by turning pedestrians into producers of a radio programme. Audio is captured by the microphone and then simultaneously fed through the mixer to the



197 **Ricardo Miranda Zúñiga**, *The Public Broadcast Cart*, 2003–6.

198. Marko Peljhan, *Makrolab*, 1994–present. Over the years *Makrolab* has been shown in numerous venues, including the 50th Venice Biennale in 2003, illustrated here. Recently the Arctic and Antarctic *Makrolab* projects have been developed under the larger umbrella of the I-TASC (Interpolar Transnational Art and Science Consortium), conceived by Thomas Mulcaire and Marko Peljhan. Bringing together individuals and organizations in the fields of art, engineering, science, and technology, there is a focus on the development and deployment of renewable energy, waste recycling systems, sustainable architecture, and open-source media.

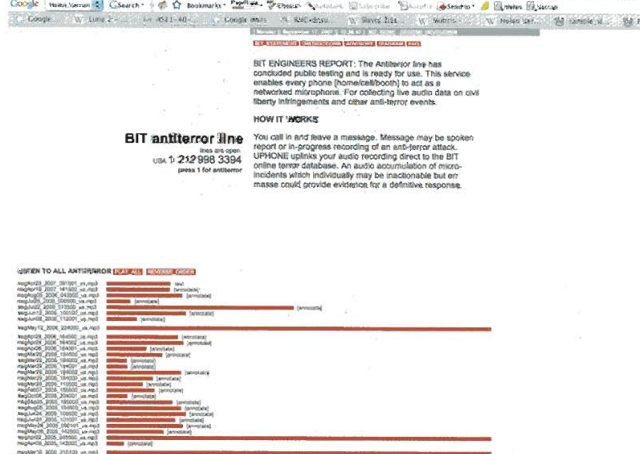


speakers on the cart, a local FM frequency, and an online server such as thing.net.

A different form of mobility surfaces in Marko Peljhan's (b. 1969) *Makrolab* (1994–present), conceived in 1994 during the wars in the former Yugoslavia, which has been designed to serve as an autonomous and mobile performance and tactical media environment for artists, scientists, and activists. Users of the lab are supplied with the tools and means for developing projects and conducting research pertaining to telecommunications, climate, and migrations. *Makrolab* was first presented at ISEA 1994 and has since been shown in numerous venues, among them the 50th Venice Biennale (2003, above) where the lab was located on the island of Campalto in the Venice lagoon.

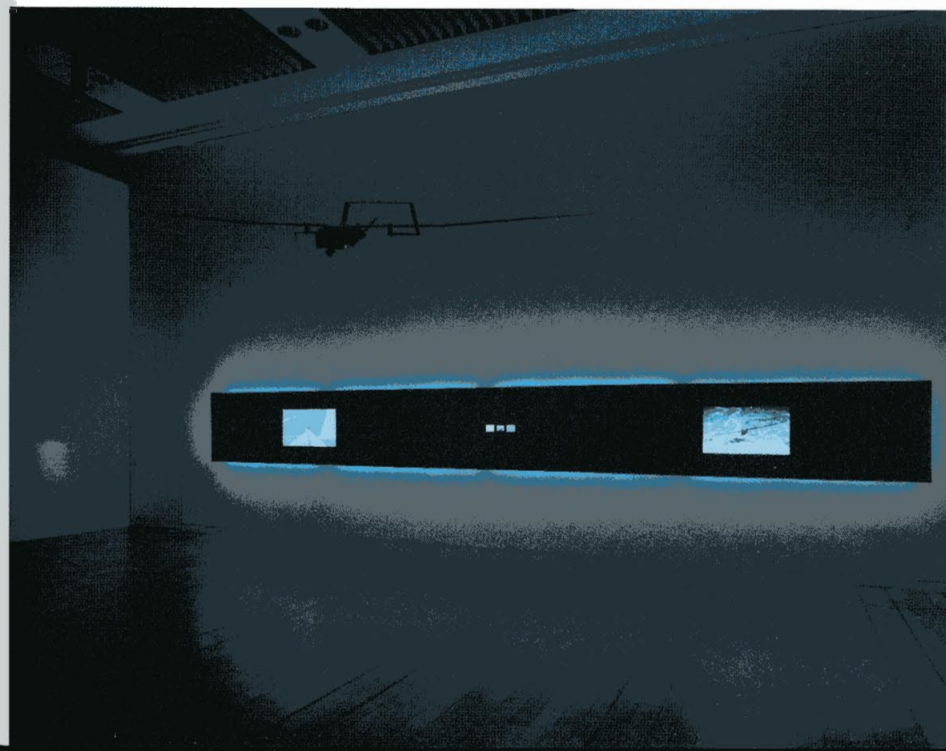
As previously mentioned, one strategy employed by activist projects is to turn technologies against themselves, for example by making mobile technologies' capacities for monitoring available to the public. *The Antiterror Line* (2003–4) by the Bureau of Inverse Technology (BIT, f. 1991) collects live audio data on civil liberty infringements from phone-in participants and thereby transforms phones (mobiles and landlines) into networked microphones. Users may record incidents while they are unfolding or leave spoken reports, and the recordings are directly uploaded into an online database. While individual incidents of civil liberty violation may go unnoticed or unreported, accumulatively they call for action. In an age of increased security measures designed to keep citizens safe from harm and terrorist attacks, the project suggests the public's need for protecting itself at the point where official procedures begin to corrode the very liberties and society they are designed to preserve.

199. (right) Bureau of Inverse Technology, *The Antiterror Line*, 2003–4



200. (below) Konrad Becker and Public Netbase with Pact System, *System-77 CCR*, 2004  
*System-77 CCR* was first presented in Karlsplatz, a central square in Vienna, and created extensive public debate about the legitimacy of surveillance technologies. The project strives to provide the public with access to the control of technologies, proposing that tools of risk assessment should also be available to independent citizens rather than be predominately privately controlled.

Similar issues are addressed by a consortium in *System-77 CCR* (Civil Counter-Reconnaissance) (2004), a project developed by Konrad Becker and Public Netbase in collaboration with Marko Peljhan's Pact System. The project, which is described as a tactical urban counter-surveillance system involving ground-controlled Unmanned Aerial Vehicles (UAVs) and airborne drones for monitoring public space, tackles the increasing privatization of security and calls for the democratization of surveillance technologies.





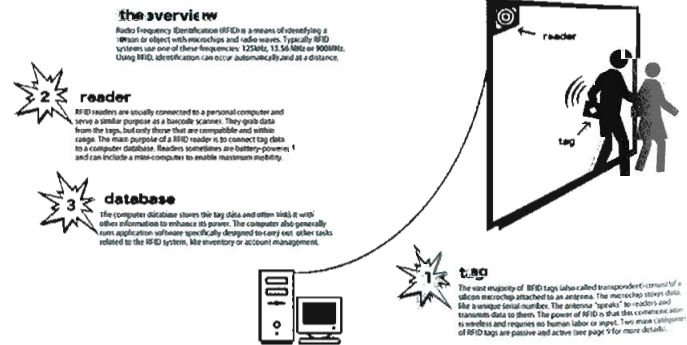
201. **Preemptive Media, Zapped!**, 2006

(above) This keychain detector was engineered by Preemptive Media to address the use of Radio Frequency Identification (RFID). The device rings when RFID readers are in the vicinity scanning the airwaves for data.

(centre and bottom) Preemptive Media runs workshops to inform people about the widespread use of RFID. Participants receive an overview of the technology and its related issues along with a *Zapped!* workbook, and can even learn to build their own RFID keychain detector.



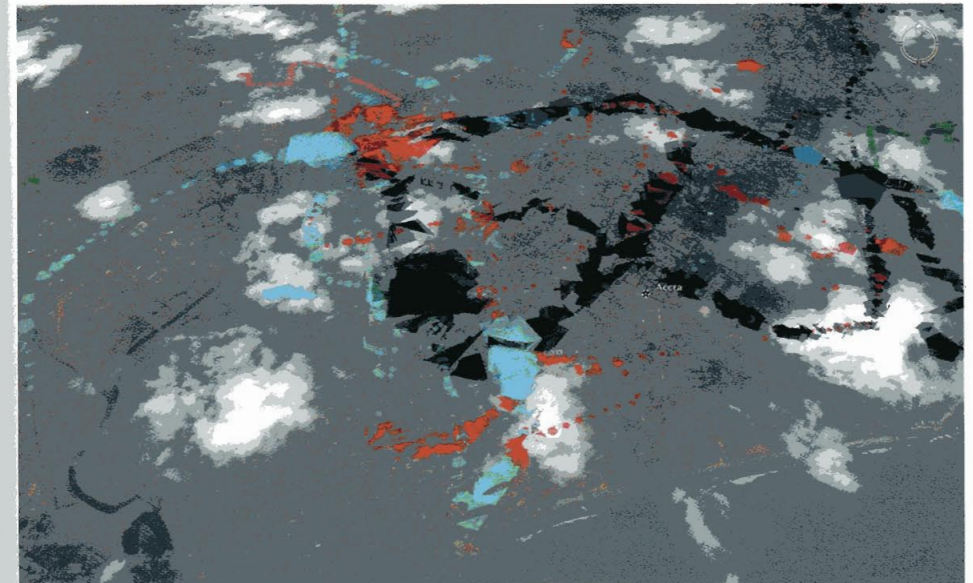
## RFID: How it Works



202. (below) **Eric Paulos with Urban Atmospheres, Participatory Urbanism**, 2006–present. Urban Atmospheres gathered two weeks of environmental data from taxis in the Ghanaian capital of Accra which illustrated significant fluctuations in air quality. Air samplers with carbon monoxide, sulphur dioxide, and nitrogen dioxide sensors were mounted on taxis, and individuals also collected data by wearing a setup with similar air-quality sensors and a GPS unit. Air quality, noise pollution, UV levels, and water quality are among the data that could be collected with mobile devices, which the group believe could give communities more power and leverage in political decisions. This image shows carbon monoxide readings across Accra: colours represent individual taxis; the patch size indicates the intensity of carbon monoxide during a single day across this capital city. Note the variations across the city and within small neighbourhoods.

Surveillance and tracking technologies have also become increasingly commonplace in the day-to-day lives of consumers. Radio Frequency Identification (RFID) tags and systems have been developed and used not only to track animals or humans (by law enforcement or for protection) but also products. The use of shopping cards – store cards or 'membership' cards – to assess and monitor consumer habits has been the subject of much debate, and is just one example of how personal data is now accessed in order to maximize the effectiveness of information economics. The project *Zapped!* (2006) by Preemptive Media (f. 2002, with Beatriz da Costa, Heidi Kumao, Jamie Schulte, and Brooke Singer) critically addresses the mass deployment of Radio Frequency Identification through workshops, devices, and activities. The objective of *Zapped!* is, however, to inform about tags and encourage critical response and engagement rather than paranoia.

Mobile devices are also being used by activist groups to gather information – for instance, to compile data about the environment. An example would be the *Participatory Urbanism* (2006–present) project that is being developed by Eric Paulos and his colleagues from the Urban Atmospheres group at the Intel Research Lab. The project's goal is to enable new participatory urban lifestyles by transforming mobile devices from mere communication tools into what they call 'networked mobile personal measurement instruments'. By authoring, sharing, and







203. **Gabriel Zea, Andres Burbano, Camilo Martinez, and Alejandro Duque, *BereBere*, 2007.** This project uses a wireless device which is equipped with video and audio systems, sensors to monitor CO<sub>2</sub> emissions and electrosmog, and GPS instruments to map the gathered data. Through its set-up *BereBere* places more emphasis on engagement with passers-by in the street to create an awareness of urban issues, and connects with people who may not have access to or be familiar with the technologies used. The project functions as a tool both for data collection and the creation of experimental portraits of communities.

remixing new or existing technologies, the project series strives to give citizens more agency in contributing to decision-making about their environment. Providing the average, non-expert user with hardware toolkits and physical sensors that can be easily attached to consumer mobile devices, *Participatory Urbanism* wants to enable citizens to collect and share data about their surroundings and environment. Engaging public participation in monitoring the urban environment is also the objective of the *BereBere* (2007) project by Gabriel Zea, Andres Burbano, Camilo Martinez, and Alejandro Duque, who walk the streets of Medellín, Colombia, with a mobile apparatus which includes CO<sub>2</sub> sensors. Another common strategy of environmentally focused activist projects is to employ frequently used devices such as mobile phones or PDAs or recruit people who are travelling certain routes on a daily basis. An original and inventive twist on this strategy is the project *PigeonBlog* (2006) by Beatriz da Costa with Cina Hazegh and Kevin Ponto. Launched at the ISEA 2006 / 01 Festival in San Jose, California, *PigeonBlog* uses urban homing pigeons to gather data on air pollution levels.

#### *Social networking*

The idea of linking and networking, be it through static or mobile technologies, is intrinsic to and arguably the essence of digital media. In terms of the development of digital media, there has been a shift of emphasis from the networking – that is, the linking and exchange – of media files (through email or the World Wide

Web) to the networking of people. For more than fifteen years, the websites of individuals, non-profit organizations, and companies have been an increasingly important way of publishing information. In recent years, Web logs (blogs), wikis (websites that allow multiple authors to edit the featured content), and social networking sites such as MySpace, YouTube, and Flickr have been hyped as a supposed 'second generation of Web-based services' under the umbrella term Web 2.0. Coined by O'Reilly Media in 2004, the term describes 'a business revolution in the computer industry' based on building 'applications that harness network effects to get better the more people use them'. As a corporate concept, Web. 2.0 provides contextual 'warehouses' that allow for the filtering and networking of content provided by users, whether photos (Flickr), videos (YouTube), or personal profiles (MySpace). One of the most problematic aspects of these

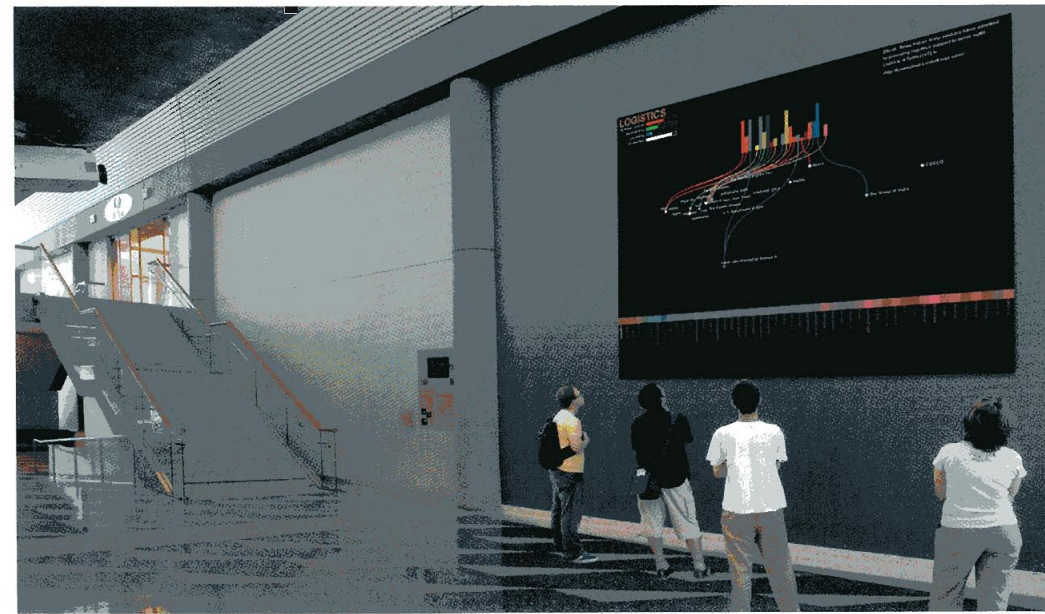
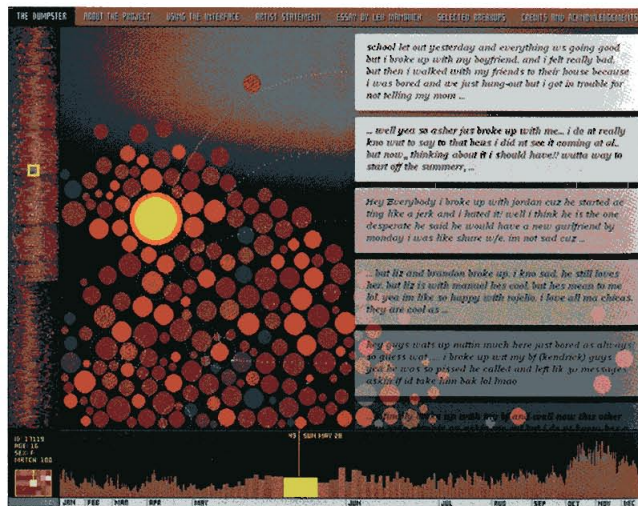
204. **Beatriz da Costa with Cina Hazegh and Kevin Ponto, *PigeonBlog*, 2006.** In this project urban homing pigeons are equipped with lightweight backpacks containing GPS-enabled air-pollution sensors which send real-time location-based data to an online blog and mapping environment. Pigeons are also deployed to play the role of 'embedded reporters'; carrying small camera phones and a microphone, they send progress reports during the data-gathering mission.



social networking sites is the fact that users effectively grant extensive rights to the content they contribute, which raises interesting questions about authorship and the preservation of information. Rather than establishing a reconfigurable platform for networking and generating network effects, Web 2.0 sites largely provide a hyperlinked broadcasting environment with meta-tags that allow for easy filtering. The digital, networked commons include platforms that help creative and cultural communities stay informed and improve policies that shape cultural life. At the same time, the commercial construct of Web 2.0 with its social networking tools has created a new, contemporary version of users as 'content providers' who fill contextual interfaces with data.

Blogs were an early form of what is now known as social networking and encouraged a mode of publishing – the online diary – that resonates with the increasing desire for self-exposure or voyeurism in the media which is at the core of reality TV. However, social networking sites surpass blogs as they can filter and match content across individual pages and profiles. The filtering of content to create a 'social portrait' of bloggers publicly sharing highly personal information was the idea behind *The Dumpster* (2006) by Golan Levin (b. 1972) with Kamal Nigam and Jonathan Feinberg. The project is an interactive online visualization that portrays the romantic break-ups of mostly American teenagers. Gathering data from millions of online blogs, the artists assembled a collection of 20,000 romantic break-ups that occurred during 2005 and used custom language-analysis soft-

205. Golan Levin with Kamal Nigam and Jonathan Feinberg, *The Dumpster*, 2006. From a pool of 20,000 teenage break-ups, the interface enables users to see which break-ups are comparable and reveals the similarities, differences, and underlying patterns of the end of the relationships. The similarities are determined by many linguistic, demographic, and thematic factors, and include aspects such as age and gender, the reasons for and dynamics of the break-up, as well as language use.

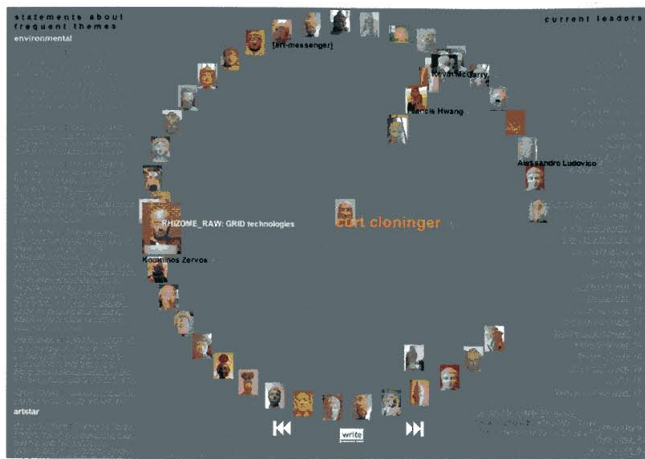


206. Antonio Muntadas, *On Translation: Social Networks* at the San Jose Convention Center, 2006

ware to computationally evaluate the posts and classify them according to different characteristics. *The Dumpster* shows how an age group in a relatively defined geographic area addresses relationship problems in a process that Lev Manovich has referred to as 'social data browsing'.

Antonio Muntadas's networked projection *On Translation: Social Networks* (2006) offers a different kind of social data browsing by interpreting the vocabulary that a selection of organizations use on their websites. Organizations ranging from Apple to Rhizome are placed on a world map, their text sampled, and their vocabulary analysed. Websites are ranked according to their level of technological, militaristic, cultural, and economic influence, and each of these four aspects is assigned a colour value (red, green, blue, and white respectively), which, in its mix, determines the colour of the website. A colour palette at the bottom of the projection shows trends in language; for example, a word may lean toward 'militaristic' in its colour due to the websites on which it has been used.

Warren Sack (b. 1962) also explores language and positioning in *Agonistics: A Language Game* (2005), this time in the context of large-scale online communications. The project is inspired by the concept of 'agonistics', the science of athletic combats, or contests in public games. Theorists such as Chantal Mouffe have been

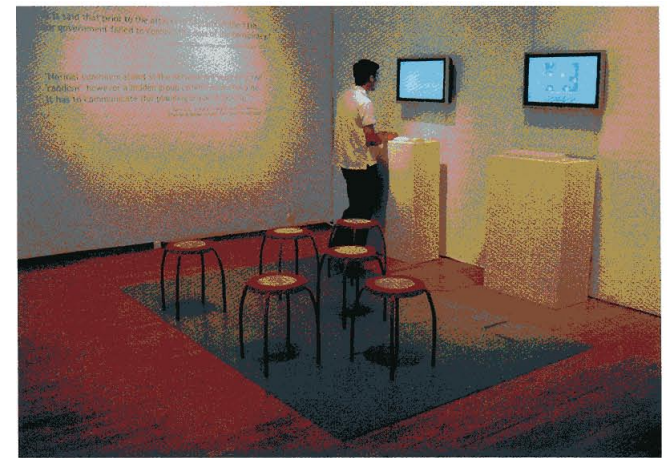


207. **Warren Sack**, *Agonistics: A Language Game*, 2005 Using any email program, players can post messages to online, public discussions, which the project then translates into a graphical display where participants are represented by thumbnail images. Players are assigned a position in a circle, depending on the content of their message, and are placed in relation to the other players who posted a message on the same theme. After each new message posted to the discussion, everyone's position is algorithmically recomputed. By posting a message to the discussion that voices a specific opinion about a theme, players can move themselves closer to or further away from other players

interested in the democratic potential of agonistic contests, using metaphorical images and actions to describe verbal contests as a language game. Sack's project draws on these ideas and applies them to online discussion forums such as Usenet newsgroups or the Rhizome mailing list. By enabling participation and filtering on the basis of rules that are established by the artist (and the algorithms used), *Agonistics* creates an enhanced awareness of how individuals position themselves, be it in a social context or in the ways they express their opinion. The project is a public artwork in which participants are both the active producers of content as well as its recipients, and reveals how 'systems' and 'communities' can create narratives that highlight relationships between individuals.

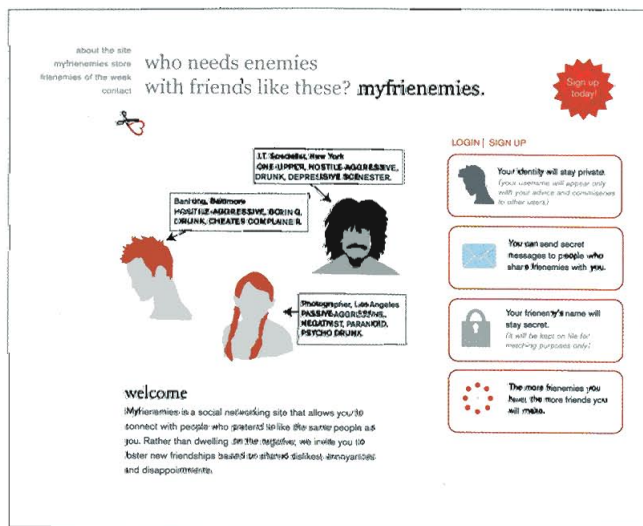
The growing popularity of social networking sites such as Friendster, MySpace, Facebook, and others has also inspired art projects that explicitly reference these sites and explore their underlying paradigms. *Sinister Social Network* (2006) by Annina Rüst (b. 1977), who is working with the Computing Culture research group at MIT in Boston, establishes a connection between data-surveillance (or dataveillance) and social networking by using research on software that identifies and analyses suspicious behaviour on the basis of communication patterns. *Sinister Social Network* points to the moments of suspicion and conspiracy that are intrinsic to networking sites. The site incorporates online chat bots that infiltrate chat networks and, aside from discussing banal topics, occasionally make suspicious, potentially conspiratorial remarks. By telephoning the bots, users can insert their own messages into the bots' conversations.

208. **Annina Rüst**, *Sinister Social Network*, 2006



Software analyses and maps the online conversations, detecting unfriendly uses of the social network.

Angie Waller's *myfrienemies.com* (2007) also subverts and questions the 'friendly' social networking environment, in this case by pointing to the more negative premises on which alliances and friendships are often built. Mimicking a secret society, *myfrienemies.com* is designed to cultivate new friendships on the basis of shared dislikes. The site connects users who share feelings of aversion towards the same person and lets them peruse testimonials based on profiles such as the 'hostile-aggressive' personality or the one that is 'eager to please'. While taking a deliberately negative approach, the project creates an awareness of the complexities of emotions that foster bonding.



### *The next generation of virtual worlds*

The connectivity created by mobile devices and social networking sites finds its extension in the social spaces of virtual worlds, which have become increasingly sophisticated over the past fifteen years. Massive multi-player online games such as the popular World of Warcraft have set new standards for virtual worlds and the actions within them and have created new virtual forms of community. The text-based online MUDs and MOOs of the early 1990s were gradually superseded by 2D graphic chat environments and finally 3D virtual worlds. In recent years, Second Life (SL), an online virtual world developed and maintained by San Francisco-based Linden Research, Inc. (Linden Lab), has emerged as the most successful virtual world to date and has received international coverage in the mainstream media. A downloadable client program enables the users and residents of SL to inhabit and explore the world, build their homes, and socialize making use of social networking services. Residents can also buy real estate and create and trade items, known as virtual property in the 'in-world' currency of Linden dollars, which are now also traded for 'real world' currency. The in-world buying and selling of virtual goods and services in SL has reached a monthly turnover of several million US dollars and has created a complex micro-economy which is a noteworthy phenomenon.

While SL is the first virtual world to have attracted such a critical mass of users, it has had many predecessors. *AVATARA*

210. (top) Donato Mancini and Jeremy Owen Turner with Patrick 'Flick' Harrison, *AVATARA* Portrait of VanGo at Baby's Pool, 2003. *AVATARA* was recorded entirely 'in-world' (i.e. within the Traveler environment) and, according to its creators, is one of the first docudramas to be done in Machinima style – displaying its content from within a virtual world. The interviewer and guide Kalki (a bluish horse head) and the inhabitants of the Traveler environment appear as torso-size avatars in their natural virtual surroundings and comment on the topics Community, Identity, Art, War, and Loss.



211 (bottom) Donato Mancini and Jeremy Owen Turner with Patrick 'Flick' Harrison, *AVATARA*: Fast Eddie Interviewed by Kalki at the Ozgate Entrance, 2003



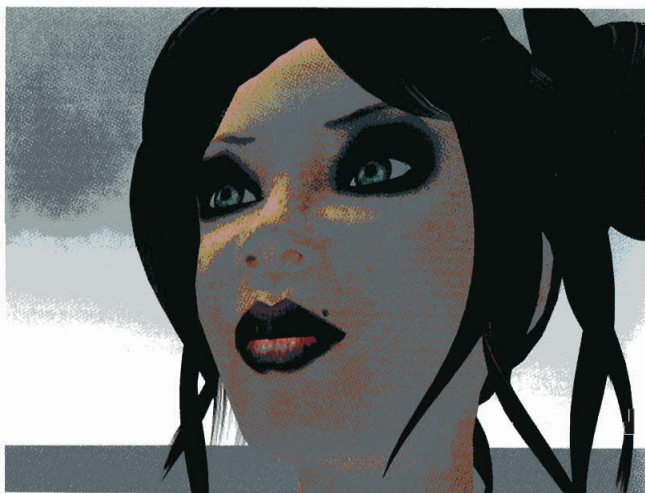
(2003) by Donato Mancini and Jeremy Owen Turner, with editor Patrick 'Flick' Harrison, provided an insight into the dynamics of virtual worlds in the form of a movie, distributed on DVD. The feature-length documentary consists of interviews with the (mostly American) inhabitants of the voice-chat environment OnLive! Traveler, which was established in c. 1993 and later became accessible through The Digital Space Commons as DigitalSpace Traveler. *AVATARA* features the online world at its best – a community-building technology that offers a creative outlet for everyone – yet doesn't neglect the darker aspects of its social fabric, which replicates the real world in many ways.

Avatars as a new form of self-representation have been fertile ground for artistic experimentation. Since 2006, artists Eva and Franco Mattes (b. 1976, aka 0100101110101101.org) have inhabited Second Life and created portraits of avatars, which are

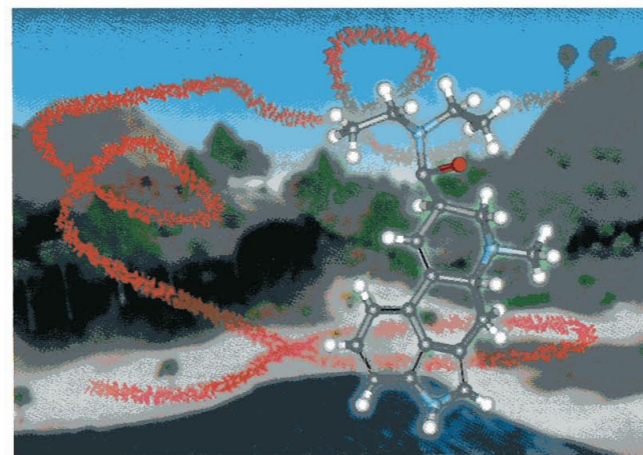
'shot' in the virtual world but exhibited as high-end digital prints on canvas. Their series *13 Most Beautiful Avatars* (2006) portrays celebrated 'stars' of Second Life and explicitly alludes to Andy Warhol's series *The 13 Most Beautiful Boys* and *The 13 Most Beautiful Women* (1964), which captured a different period of stardom and pop celebrity. In transporting the aesthetics of the 3D world with its specific colours, light, shapes, and perspectives onto canvas and into the gallery, the images raise interesting questions about the history of portraiture and conventions of photography and painting. As with many of their predecessors in traditional media, these self-portraits are based less on a realistic



212. (top) **Eva and Franco Mattes (aka 0100101110101101.org)**, *Annoying Japanese Child Dinosaur*, 2006 The Matteses have referred to the idealized avatar images in *13 Most Beautiful Avatars* as 'pictures of self-portraits' rather than portraits. They continued their investigation into this form of representation with the series *Annoying Japanese Child Dinosaur*, which consists of portraits of avatars created by Japanese children and takes a look at a very specific subculture, its aesthetics, and cultural subtexts. The title references the novella *Mr. Boy* (1990) by James Patrick Kelly and the fantasy world of its protagonist, a genetically undersized 12-year-old.



213. (bottom) **Eva and Franco Mattes (0100101110101101.org)**, *13 Most Beautiful Avatars*, 2006



214. **Will Pappenheimer and John Craig Freeman**, *VF-Virta-Flaneurazine-SL* ©, 2007

depiction than an idealized self-image that is often stereotypical and largely matches the Western canon of beauty.

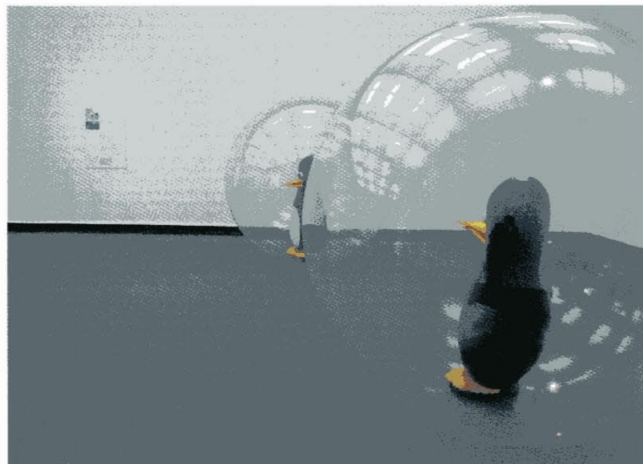
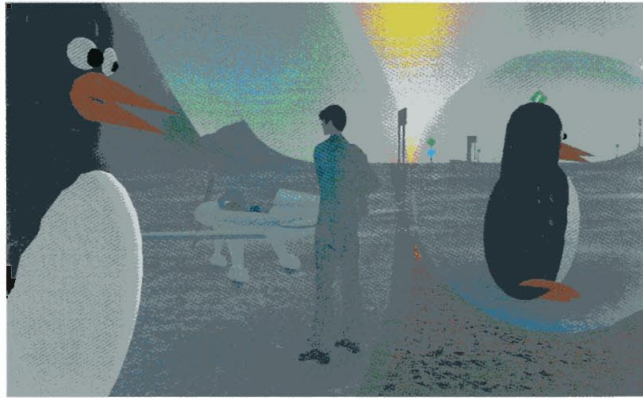
A more psychologically oriented, satirical investigation of avatar personality and its encoded nature unfolds in Will Pappenheimer (b. 1954) and John Craig Freeman's (b. 1959) *VF-Virta-Flaneurazine-SL* © (2007), a programmable 'mood-changing' drug for Second Life, which, once ingested, causes its consumer to aimlessly wander through the SL environment for up to a full day, erratically teleporting to random locations. The so-called 'prograchemistry' of the drug is based on a formula conceived and developed by the artists, who have been testing the effects of the drug in clinical studies where users register, download a custom desktop-active ingredient, and are directed to a site in SL for ingesting the second part of the drug. Users allegedly reported that the drug allows them 'to see SL freed from its limitations as a fast-growing grid of investment properties'. In a humorous way, the project points to the more serious implications of a (virtual) society whose inhabitants are at least partly coded by a corporate entity (Linden Lab), which determines their behavioural properties and the framework of their society.

The interconnection between the economies of the real world and virtual environments such as SL and online games also raises questions about the value of the art object. The project *Objects of* 215-16  
*Virtual Desire* (2005) by G+S (Simon Goldin and Jakob Senneby, b. 1981 and 1971 respectively) – who also founded *The Port* (2004), a community-driven island and space for cultural production in SL – explores how value is transferred from the material to the immaterial and vice versa, and the ways in which the

215. (top) G+S. *Objects of Virtual Desire: Jade Lily's <3> Choker*, 2005. This project strives to replicate the 'process of becoming' that takes place in a virtual world: objects in virtual worlds are often representations of physical counterparts, but gain new meanings through their site-specific functionality in virtual environments and become objects in their own right; similarly, the physical reproductions of the virtual objects are representations of the immaterial and remain virtual unless they emerge as objects with new functionality



216 (centre and bottom) G+S. *Objects of Virtual Desire: Cubey Terra's Penguin Ball*, 2005



217. (below and overleaf, top) eteam. *Second Life Dumpster*, 2007



materialized object affects the perception of the virtual original. For the project, the artists started collecting immaterial objects created and owned by SL inhabitants. The objects, which were selected on the basis of their sentimental value to their owner, were acquired by the artists as a copy along with the personal story that went with them, and some have been reproduced in physical form. The physical recreations of a piece of jewelry (the choker of the avatar Jade Lily) and of the Penguin Ball (a transparent ball with a penguin inside it – the logo of the Linux operating system – which was created in SL by Cubey Terra) were exhibited at the Bergen Kunsthall in late 2005, together with interviews with the avatars of the original owners.

The value of property – in this case, 'land' – is also at the core of the time-based, performative project *Second Life Dumpster* (2007) by eteam (Hajoe Moderegger and Franziska Lamprecht, b. 1964 and 1975 respectively). The artists bought commercial land in SL and, for the duration of a year, maintained a public rubbish area for collecting the items from the trash folders that avatars have by default, and need to empty regularly in order to maintain their performance. This work gives 'materiality' to the



notion of waste, which is so easily obliterated in the virtual realm, and addresses questions surrounding the quality and personal 'history' of the waste disposed (objects, messages, avatars, behaviours, etc.) and the concepts of disposal, decomposition, and recycling in the virtual realm.

Virtual worlds offer a performative environment for realizing what is not possible or at least difficult to achieve in the physical world. In their piece *Reenactment of Joseph Beuys' 7000 Oaks* (2007), Eva and Franco Mattes (aka 0100101110101101.org) have made use of this opportunity to continue – at least symbolically – the implementation of a Beuys piece that remained largely unrealized. On 16 March 1982, at Documenta 7 in Kassel,

218. (below and right)  
Eva and Franco Mattes (aka  
0100101110101101.org),  
*Reenactment of Joseph Beuys'*  
*7000 Oaks*, 2007



Germany, Beuys initiated the first stage of what he intended to be an ongoing, global process of planting 7,000 trees, each paired with a column of basalt stone, to initiate environmental and social change. The Matteses are re-enacting the piece on their virtual Cosmos Island in SL, where they planted the first virtual tree and stone on 16 March 2007. The stones have been stacked on the island, and SL inhabitants are invited to place stones and trees on their own land. The virtual continuance of the performance may not have the direct environmental effect of the original, but it keeps both the spirit of Beuys's project and an artistic heritage alive.

Like its graphic chat-room predecessors, worlds such as SL provide the stage for public performances. Supposedly the first performance group operating in SL is Second Front, founded in 2006. In their works, Second Front have continuously engaged with the underlying 'architecture' and economics of SL in often subversive and radical ways. Their three-act performance *Spawn of the Surreal* (2007), which was part of the Chaos Festival on the SL campus of the New Media Consortium, was a 'spectacle of self-consciousness' in which unsuspecting audience members were mutated into sculptural configurations reminiscent of Cubism whenever they sat in the chairs that were part of Second Front's installation. Second Front member Gazira Babeli came up with the idea after she found that one of her code scripts was acting up and kept on deforming her avatars. The group took this incident as a starting point for questioning the (Western) ideals of beauty that manifest themselves in the appearance of avatars, and they decided to tackle this idea by writing 'bad' code – named



219 Second Front, *Spawn of the Surreal*, 2007

220. **Second Front's** performance *Border Control*, on the occasion of John Craig Freeman's installation *Imaging Place SL: The U.S./Mexico Border* in Second Life's Ars Virtua Gallery, 2007



Code Deforma – which infected SL avatars and transformed them into surreal beings with elongated, contorted limbs and inverted heads. Some infected audience members fled the space in terror while others requested more extreme results. In their opening performance for John Craig Freeman's installation *Imaging Place SL: The U.S./Mexico Border* (2007) in Second Life's Ars Virtua Gallery, Second Front took the notion of the border quite literally and staged an aggressive *Border Control*, complete with helicopters and tanks, intended to reflect on the increasing militarization of the borders throughout North America. The performers finally set the space on fire, which caused the audience to flee and left the space littered with rubble. While the performance caused a significant amount of controversy, it quite effectively rendered 'real' the simulation of violence – a common premise of many computer games. Crossing the borders of acceptable behaviour within a virtual world, *Border Control* made simulated violence a questionable act.

Neither Second Life nor the currently popular social networking services will be definitive models and are continuously inspiring their own competitors. As the so-called 2.0 phase of network technologies, they represent a new stage in the development of the connectivity that is one of the crucial features of digital media and will continue to play a dominant role in digital art. Presumably mobile technologies will become even more pervasive in the future and enable more sophisticated forms of networking that will be creatively and critically explored by art and commerce. Digital art, probably more so than before, will exist in multiple contexts – the public spaces of networks, cities, and natural environments. It remains to be seen if and how traditional art institutions will open up to these varied contexts in support of digital art forms.

## Glossary

**AIML** Artificial Intelligence Markup Language, created by Dr Richard Wallace, is a scripting language (see below) that enables verbal communication with a computer. It allows pattern-based, stimulus-response knowledge content to be served, received, and processed on the Web and offline in the same way as documents are published and processed with HTML (see below).

**algorithm** Algorithms are step-by-step procedures of formal instructions that solve problems and tasks and accomplish a 'result' in a finite number of steps. Any software and computer operation is the realization of algorithms with the help of a programming language.

**artificial life** The reproduction of biological processes or organisms and their behaviours through computer systems.

**ASCII** The American Standard Code for Information Interchange, the standard computer code, which was first proposed in 1963 and finalized in 1968. The ASCII character set consists of 128 decimal numbers ranging from zero through 127 assigned to letters, numbers, punctuation marks, and the most common special characters.

**augmented reality** The augmentation of the physical reality surrounding us through computer-generated elements. As opposed to virtual reality, which is aimed at creating immersive, completely to computer-generated worlds, augmented-reality systems add visual information to the physical world (often through a head-mounted display).

**autonomous characters** Computer-controlled characters or entities that are able to exhibit autonomous behaviours and navigate around their world in a lifelike and improvisational manner. The behaviour of the characters allows them to react independently to the specifics of their surroundings. Craig Reynolds is one of the influential researchers who has developed steering behaviours for autonomous characters, which have found their application in games and feature films. The flocking of the dinosaurs in *Jurassic Park*, for example, was based on his work, and he subsequently won the Scientific and Engineering Award at the 1998 Academy Awards.

**cellular automata** Cellular automata are an array of identically programmed 'cells' (simple computing units) that each obey their own sets of rules and interact with one another. The term 'cellular automaton' was introduced in

the 1950s by Arthur Burks, who, with his wife Alice, helped build and program ENIAC, the first computer. By building appropriate rules into a cellular automaton, one can simulate many kinds of complex behaviour, ranging from the motion of fluids to the movements of fish on a coral reef (see also 'autonomous characters').

**cyberspace** A term coined by William Gibson in his novel *Neuromancer* for an entirely computer-generated, immersive world.

**data layers** Different types or levels of information (from computer code or a database to visuals and audio) that can be combined or inserted into one system. For example, any computer program can be understood as a combination of data layers, from the underlying code to the interface that allows the user to perform operations.

**dataspace** A virtual space constructed from and containing computer-generated information. A dataspace, also known as an information space, can manifest itself as anything ranging from the 3D world of a game to a visual interface for a library catalogue.

**GPS** The Global Positioning System is a navigation system made up of a network of twenty-four satellites orbiting the Earth and transmitting coded signals to users' receivers on the ground. Four GPS satellite signals compute the three dimensions and the fourth dimension of time to pinpoint a user's exact position on the globe. Though funded and controlled by the US Department of Defense, most uses of the system are civilian. Aircrafts, ships, ground vehicles, and pedestrians all employ the system to track their movements and navigate.

**HTML** Hypertext Markup Language is a scripting language (see below) that makes it possible to establish links between documents and arbitrary nodes (computers hooked up to a network). HTML is the underlying language of the World Wide Web.

**hypertext** Linked segments of text that can be navigated by a user. Hypertext originated in Theodor Nelson's concept of the 'docuverse', a space of writing and reading where texts could be electronically interconnected by anyone contributing to the networked text. While the World Wide Web essentially is a hypertext environment, hypertext software existed before HTML.

**hypermedia** An environment of linked multimedia elements, such as text, audio, visuals, movies. Anything from an interactive CD-ROM to the World Wide Web can be considered a hypermedia environment.

**information space** see 'dataspace'

**intelligent agent** Software programs to which users can delegate tasks and which automatically filter and customize information on behalf of their user. As opposed to conventional software, intelligent agents are semi-autonomous, proactive, and adaptive.

**PDA** Personal digital assistants (PDAs), such as Palm Pilots and Handspring Visors, are portable, hand-held computing devices that store data and transmit information.

**rapid prototyping** A process that automates the fabrication of an object from a CAD (computer-aided design) model. The three main categories of fabrication processes are subtractive, additive, and compressive. In a subtractive process, the desired object is carved from a block of material. The additive process builds an object through layer-by-layer fabrication from plastic, starch-based, or wax materials. In the compressive process a semi-solid or liquid material is compressed into a form and then hardened or solidified (for example, through the use of lasers).

**scripting language** Scripting languages are computer languages designed to 'script' operations of a computer application to perform specific repetitive tasks.

**SMS** SMS stands for Secure Message System or Short Message Service and gives users the ability to send and receive text messages to and from mobile telephones.

**telematics** The combination of computers and telecommunications.

**telepresence** 'Telepresence' (from the Greek *tele*, meaning 'far off', 'distant') describes the ability to be present in a remote location, for example in a chat room on the Internet, through technological means.

**teletronics** The operation of a local robotic device by a user in a remote location over the Internet.

**wiki** A wiki is a website and writing platform that provides easy linking of pages and documents and can be collaboratively edited by anyone with access to it. One of the best-known wikis is the online encyclopedia Wikipedia. The first wiki, WikiWikiWeb, was developed by Ward Cunningham in 1995 and was launched in 1995. Wiki is a Hawaiian term for fast and is said to have been chosen by Cunningham to avoid the name 'quick Web'.