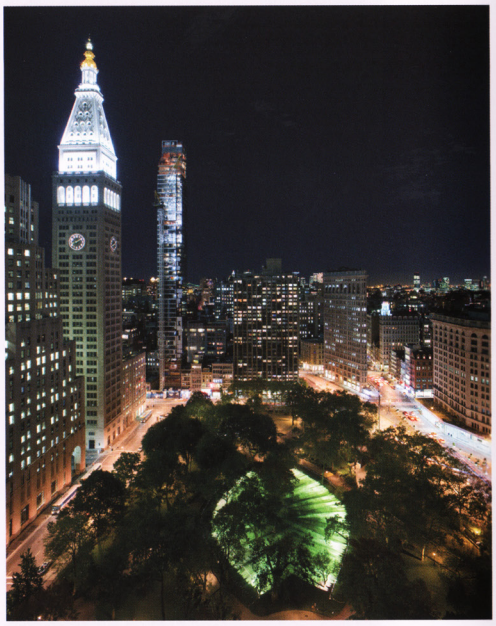
RELATIONAL INTERACTIVE ARCHITECTURE

In her concluding 'Userscape', **Valentina Croci** assesses the state of interactive design as it becomes an increasingly mature practice, with over 10 years of activity behind it. Looking at works by some of the most significant designers internationally, she emphasises how this new field of spatial design has enabled new sensory investigation and innovative explorations into the relations between people.

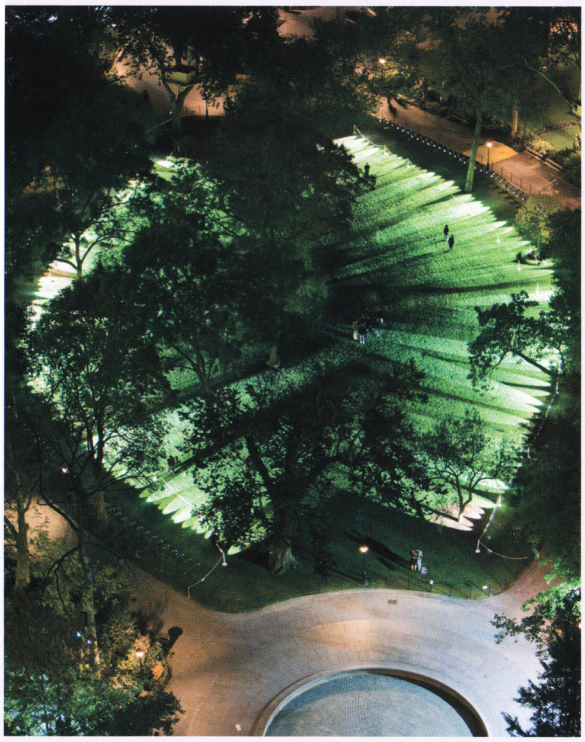


Valentina Croci

Interactive design, which has given rise to so-called responsive environments, first appeared within the field of architecture little more than a decade ago. This design practice demonstrates how a system, controlled by sensors and a computer software interface, can respond to user input and behaviour. The nature of such interaction is not linear and univocal, but rather biunivocal, between the environment and users. In terms of design, 'relational' and interactive works of architecture become a complex technological, conceptual and semiotic problem. In terms of encounter, this type of architecture allows people to experience the built environment in a more playful and participative manner, perhaps transforming their perception of public spaces.

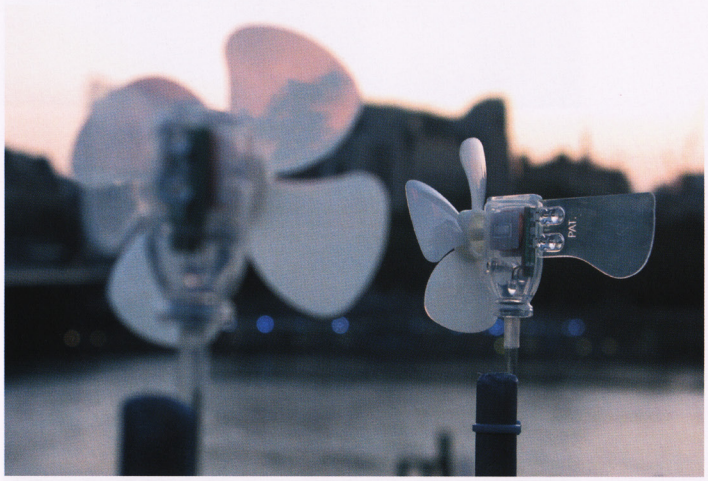
It is probable that most works in urban contexts, such as those by Jason Bruges or Rafael Lozano-Hemmer, contribute less to the understanding of the compositional qualities of space and more to the emotional involvement of the user within it. In the works of Lozano-Hemmer, the human body is used to activate hyperlinks and audiovisual content that overlap another meaning on to the experience of the context. The 15 works of Relational Architecture designed by this Mexican artist between 1997 and 2008 focused on realising vulnerable traditional concepts of space, the body and architecture, as well as demonumentalising urban spaces. In general, his work is an attempt to overcome the dualism between public and private space in favour of a shared territory in which the installation offers the user a personal vision of a site.

Croci, Valentina. "Relational Interactive Architecture." *Architectural Design: Territory* May/June 2010: 122-125. Print. (english)



Rafael Lozano-Hemmer, Pulse Park, Relational Architecture 15, Madison Square Park, New York, 2008
left: This interactive installation features 200 spotlights controlled by a heart-rate sensor and consists of a matrix of light beams that glare over the oval lawn of Madison Square Park. The intensity of the light depends on the sum of the cardiac pulsations, as well as the visualisation of systolic and diastolic impulses. It is as if the installation represents the heart of the city's inhabitants at the urban scale. The Pulse Park project was inspired by the film *Macario* (Mexico, 1960) by the Mexican director Roberto Gavaldón, and represents the conclusive phase of the research begun by Lozano-Hemmer at the 2007 Venice Biennale.

Jason Bruges Studio, Wind to Light, Southbank Centre, London, 2007
below: In response to the theme 'How green is our space?', Jason Bruges Studio devised an installation that focuses attention on the availability of alternative energy, even in the urban environment. Wind to Light visualised wind movement across the roof terraces of the Queen Elizabeth Hall using pole-mounted mini turbines that power blue and green LEDs. The installation was sensitive enough to the wind to allow viewers to see gusts and breezes passing through the turbines. The project was produced in collaboration with OneDotZero and Light Lab for London Architecture Week 2007.

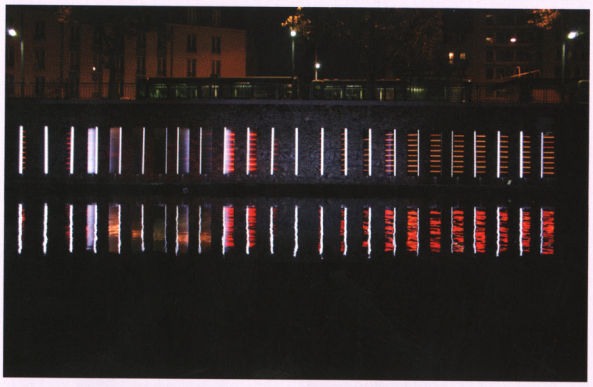


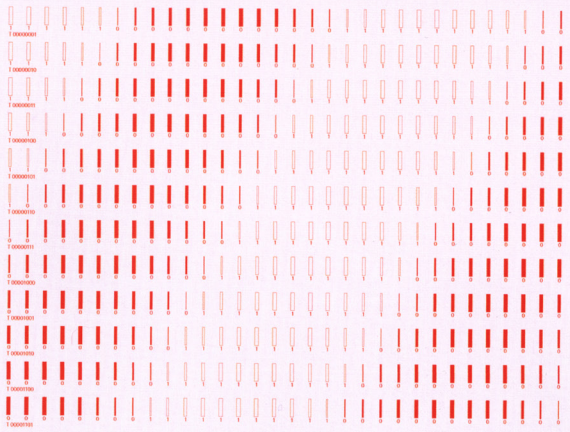
Projects such as Toyo Ito's Tower of Winds (Yokohama, 1986) or Diller + Scofidio's Blur (Swiss Expo, 2002) transformed the static nature of construction using specific atmospheric elements of a site's atmosphere – humidity, air, and the sounds and noises of the city. Buildings are thus transformed into a living creature with a strong characteristic of unpredictability. Or better yet, the architectural project becomes the display of what exists and is invisible, making us aware of the flows and physical forces that surround us and how they are interrelated. An example of this is the FLUX, binary waves (2008) project by the Belgian group LAB[au], in which the rotation of panels, patterns and the colour of integrated LEDS represent the confluence of traffic flows and electromagnetic fields in a given urban space.

In interactive projects, even the parameter of scale becomes non-conventional: the factor of performance makes the dimensions of urban spaces relative. For example, in the Laser Tag project by Graffiti Research Lab, in which bands of lasers are projected on to the facades of buildings, the leap in scale permitted by technology generates an impressive event. The building becomes a gigantic canvas for messages, as well as a political symbol desecrated by graffiti. The project recalls the subversive culture of 1980s Street Art, transforming the practices of graffiti writers from secret and illegal into theatrical and accepted. The Laser Tag performances are promoted by the Graffiti Research Lab, a Dutch collective dedicated to writing using new technologies.

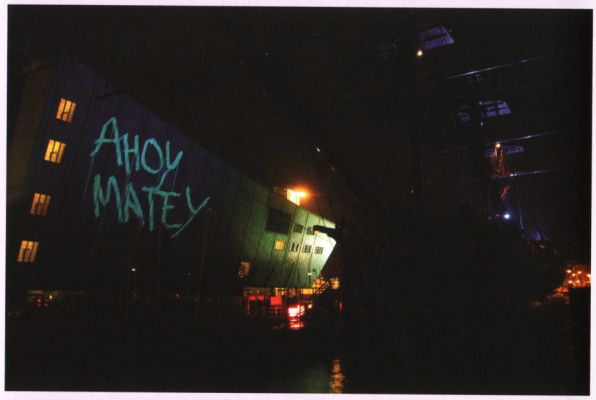
Croci, Valentina. "Relational Interactive Architecture." *Architectural Design: Territory* May/June 2010: 122-125. Print. (english)

LAb[au] (Manuel Abendroth, Jérôme Decock, Alexandre Plennevaux and Els Vermang), fLUX, binary waves, Saint-Denis RER D station, Paris, 2008
The installation is composed of 32 rotating panels with integrated LED illumination driven by internal microprocessors that calculate signals captured by infrared sensors from infrastructural flows (the passage of vehicles, pedestrians and trains) and communication flows (electromagnetic fields produced by radios and cellular phones). The impulses are transmitted from one panel to another to produce luminous waves and rotation. The lights are in two colours: white or red depending upon whether they represent the frequencies of flows or the intensity of electromagnetic fields. The installation is thus a sort of kinetic wall that reveals human activity in a particular urban space, giving form to invisible matter.

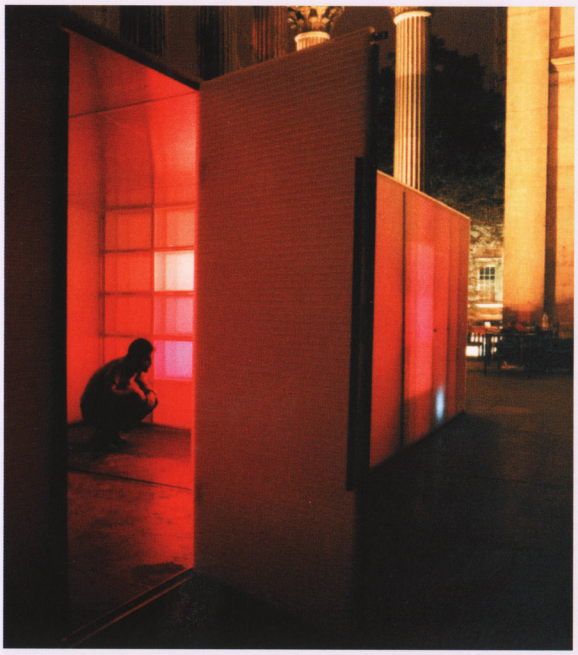




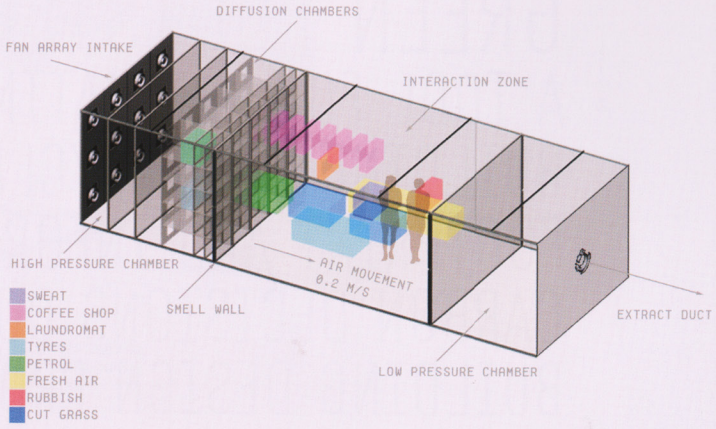
Graffiti Research Lab, Laser Tag, Amsterdam, 2007
The first Laser Tag performance was held in Rotterdam and since then there have been more than 15 performances in Australia, Austria, Canada, Germany, Japan, Hong Kong, the US, Switzerland, Spain and Sweden. Laser Tag is a mobile broadcast unit capable of projecting a 60-megawatt laser beam up to 100 metres (328 feet) in distance and on to large surfaces. The mobile unit can be moved on wheels and features a 1,000-watt audio system. The character of the event is significant: it directly involves and brings together citizens, encouraging them to express and exchange their opinions. Similar to the practice of writers in the 1980s, this type of performance has a subversive objective, with the difference that the urban scale of the graffiti makes the performance impressive and collective, and temporary though no longer clandestine.



Croci, Valentina. “Relational Interactive Architecture.” *Architectural Design: Territory* May/June 2010: 122-125. Print. (english)



Usman Haque, Josephine Pletts and Dr Luca Turin, Scents of Space, Bartlett School of Architecture, UCL, 2002
This interactive room allows for the transmission of olfactory stimuli across a three-dimensional grid. The objective is that of guiding the user through a narrative using the experience of smell. There are no physical confines in the environment, but rather olfactory zones. The installation is very simple: an empty 9-square-metre (97-square-foot) room that shines inside by day and outside by night. The production of aromas is orchestrated by software, diffused by a system of fans and realised by visual stimuli on the walls that indicate the point at which the odour is perceivable. The stimuli are transmitted at 20 centimetres (7.8 inches) per second so that users perceive only a change in smell, and not the movement of air.



Somewhere between art, anthropology, computer science and physiology, interactive design involves research into tactile interfaces and, more generally, the dialogue between a project and the user through multisensorial feedback. The installations by Usman Haque are 'spatial operating systems' or 'open-source' environments that create consequentiality between the shifting characteristics of a space and the behaviour of its users. With the Scents of Space project (2002), an interactive system that transmits olfactory stimuli across a three-dimensional grid based on human movement, Haque wanted to overcome the definition of architecture as something solid, static and permanent. He thus introduces the choreography of sensations as an ulterior element of architectural composition, generating spatial organisms that mutate through interaction and stimulate narrations – we need only recall the evocative power exercised by the olfactory senses over human perception.

This type of project highlights the non-existence of univocal parameters in the experience of the built environment, together with the importance of the subjective component. Interaction between humans and the environment depends less on the accuracy of the architectural envelope or its functions, and to a greater degree on the element of surprise and suggestion. Furthermore, because the user assumes a primary role in the functioning of space, the ideas of enjoyment and involvement exercised by an architectural context become crucial. This condition, well known to museum curators, has led in recent years to the design of interactive tours and methods of accessing collections in a playful and personalisable manner.

The field of responsive environments is not yet a mass phenomenon; however, interactive installations are progressively more common at trade fairs and cultural events. Their presence can be attributed to the growing access to technologies and the more relevant familiarity of users with interactive interfaces; here we can mention the touch screens used on a daily basis, various digital devices and the reduced use of screens in favour of objects to be manipulated. What is more, the responsive environments sector manifests the changing social value attributed to connectivity between people: the quality of the artefacts is tied less to functionality and more to the aspect of relation and participation. One example can be found in Tobi Schneidler's project for the Remote Home at the London Science Museum and the Raumlabor in Berlin in 2002. This system of communication between two environments is composed of objects of furniture that move based on input from a remote location. Or, as a mutated value attributed to connectivity, we can mention the transformation of the Web through social networks, the open-source system and the role of 'prosumer' users, or producers of content. These common phenomena stimulate research into responsive environments.

Furthermore, wireless technology sensing, portable computing and locational media are all aspects of daily practice that have allowed us to overcome the conceptual gap between the real and the virtual: what takes place on the screen of the digital device is real, even if it is composed of bits. This leap has allowed designers to investigate new technologies in order to seek out more important content and new social meanings. Humans and their sensory experiences are thus at the centre of an architectural project that is part of a new phenomenology where built space is based on investigating sensations and relations between people. AD+

Valentina Croci is a freelance journalist of industrial design and architecture. She is also coordinating the Design for Living commission at the Association of Italian Design (ADI). She graduated from Venice University of Architecture (IUAV), and attained an MSC in Architectural History from the Bartlett School of Architecture, University College London. She achieved a PHD in Industrial Design Science at the IUAV with a theoretical thesis on wearable digital technologies.