Spazio narrativo interattivo
Interactive Narrative Spaces

Our society's modalities of communication are rapidly changing. Large panel displays and screens are being installed in many public spaces, while wearable computers are transforming our technological landscape by reshaping the heavy, bulky desktop computer into a lightweight, portable device. Computation and sensing are moving from computers and devices into the environment itself. The space around us has sensors and displays, and tends to reflect a diffused need to combine information space and physical space. This combination of large public and miniature personal digital displays, together with distributed computing and sensing intelligence, offers unprecedented opportunities to merge the virtual and the real, to transform digital animated media in storytellers.

In this new "augmented reality" or "mixed reality" the relationship between public and private is changed and renewed, architectural structures open up to communications, entertainment and information.

Several scenarios arise from the encounter and blending of new media design and architectural disciplines: they affect cities which are turning into large scale communication devices, and extend to places where we learn and work, spaces for entertainment and education and, gradually, they are also affecting our living spaces. Architecture strives to communicate: its agenda needs to encompass not just the design of new media – and information – enhanced spaces, but should also extend to investigate natural modalities of human-computer interaction which facilitate communication through cyberspace. Indeed even today, the interfaces available are limited to the primitive and low-bandwidth keyboard and mouse attached to desktop or mobile computers. Some of the author's technological platforms, developed first at the Massachusetts Institute of Technology (MIT) and later with the interactive design group she founded, Sensing Places, are a first step along this path.

In the city
In the last decade, the architectural landscape of the contemporary city has experienced a profound transformation. When we drive from one city to the next, when we wander in the city center, when we drive to the airport, large billboards with printed images or large LCD screens show us publicity, entice us, talk to us, inform us. These billboards are embedded in the city's architecture, and have become integrated in the visual appearance and profile of the cityscape. This phenomenon has invested modern US and Asian metropolises, and it does not spare more classical European cities such as Milan, Paris, or Berlin. Only recently designers have created experiences that generate an information flow between city billboards, passersby with PDA devices, and people at home connected to the internet. The author and Sensing Places are currently involved in projects such as "Space-Light Simphony", an interactive
city lighting installation; “Earth Wind and Fire” a building facade which reacts to passersby on the adjacent sidewalk, and the “Interactive Shop Window” designed for a fashion retail store in Paris. We are also working towards the renovation of airports and train stations so as to transform them from anonymous non-places to spaces with a precise identity associated with their host city, that can truly welcome and orient flows of people and information.

In the museum
Museums have recently developed a strong interest in technology, as they are more than ever before in the orbit of leisure industries. They look at technology as a possible partner that can help archive a balance between leisure and learning as well as help them be more effective in conveying story and meaning. Technology can help construct a coherent narrative of an exhibit for the visitor by creating experiences in which the objects on display narrate their own story in context. Using interactive techniques embedded in the physical space, museums can present a larger variety and more connected material in an engaging manner within the limited space available.
They can also enrich the visit and personalize it according to the preferences and base knowledge of each visitor.
The author has designed and implemented a series of augmented reality devices for specific use in museums: the museum wearable is a wearable computer which orchestrates an audiovisual narration as a function of the visitor’s interests gathered from his/her physical path in the museum and length of stops.

It offers an audiovisual augmentation of the surrounding environment using a small, lightweight eye-piece display (often called private-eye) attached to conventional headphones. When people observe an object, the augmented reality device virtually projects on the museum wall a video clip which illustrates it and describes its history. Using custom built infrared location sensors distributed in the museum space, the museum wearable progressively builds a personalized audiovisual narration for each visitor.

MetaSpace, also known as the Immersive Cinema, is a large scale installation which uses two projection surfaces: one vertical and one horizontal. The horizontal surface is a large map projected on the floor, like some sort of mouse pad. People act like a cursor by physically walking onto different locations of the floor map and consequently selecting the topics of interest which then appear on the vertical screen.

A computer-controlled camera, in combination with a statistical image-processing algorithm, detect people’s presence and location on the floor map, as well as their command gestures towards the objects displayed on the vertical screen.

Unlike the immersive cinema, which involves people more on an emotional level than on a cognitive one, the interactive presentation table offers to the public a playful and educational experience. It is designed following the principles of constructivist pedagogy, by which people people learn actively through play, by hands-on experimentation and mental reconstruction of what one reads and sees. Projected on the table top is a visual map listing the topics visitors can explore. There is also an object which acts like a magic cursor on the table. By moving it on key points of the map visitors can select animations and videoclips which they then see come on the vertical screen in front.
Examples of the presentation table are: Unbuilt Ruins, an exhibit space, orchestrated by the table, which shows a variety of architectural designs by the influential XXth century American architect Louis Kahn and MOMA’s Unprivate house exhibit’s interactive table, modeled on the previous one.

New challenges
“Traditional urban patterns cannot coexist with cyberspace ... This will redefine the intellectual and professional agenda of architects, urban designers, and others who care about the spaces and places in which we spend our daily lives ... This new agenda separates itself naturally into several distinct levels ... We must put in the necessary digital telecommunications infrastructure, create innovative smart places from electronic hardware as well as traditional architectural elements, and develop the software that activates those places and makes them useful ...
To pursue this agenda effectively, we must extend the definitions of architecture and urban design to encompass virtual places as well as physical ones, software as well as hardware, and interconnection by means of telecommunications links as well as by physical adjacencies and transportation systems.”
(William J. Mitchell, Dean of MIT’s School of Architecture and Planning, in: E-topia, p. 8).