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Pixelspaces

Pixelspaces is a series of events to be presented during the festival Ars Electronica in which various proponents of VR present and discuss new theories and prototypes in the fields of hardware design and application development. Contributors include David Nahon, Dietmar Offenhuber, Dan Sandin, Maurice Benayoun and Michael Shamiyeh. Parallel to this series, the Ars Electronica FutureLab and the University for Artistic and Industrial Design in Linz will be conducting the *Pixel + Space* project (see the article by Michael Shamiyeh in this volume) to investigate conditions that become relevant for architects and graphic engineers in staging both real and virtual experience spaces.

Since its emergence in the early '60s, VR has been closely connected to developments in art and technology. With Dan Sandin, the inventor of the Cave, and Myron Krueger, who anticipated systems of image recognition, VR's personnel as well as its content have roots in the field of art.

For Pixelspaces and, partially, for Pixel + Space too, there are—both from the point of view of availability as well as content development—central issues stemming from both the history and the current practice of VR that raise at least two central points—interaction and "Intertainment." The field of encounter thus staked out brings together the challenges of interactive art and VR.

The articulation and structuring of the area within which the computer user goes about his activities is, according to Gui Bonsiepe, the essence of interface design. Interface thus does not primarily refer to a tool, but rather to the dimension in which the interaction between the body of the user, the tool and the objective of the user's activity is laid out.

Bonsiepe defines the interface as the space at the nexus of three elements:
1.   the user, who wants to carry out an activity,
2.   a task he wishes to complete, and
3.   a device or artifact the user needs to carry out the activity.

Once the task and the artifact (or device) have been established, consideration can turn to interface design. The creative encounter leading up to this process of interface design—that is, the development of a specific device (possibly for a certain group of users)—is, therefore, "interaction design" and clearly blends into (at least in the training given to designers) the discipline of "interface design."

But what is the name of the discipline that not only develops the device but also the task for the user to utilize the device in a certain context of activity in order to provide the interaction with content in a particular way? "Experience design" (see Nathan Shedroff: *Experience Design. A manifesto for the creation of experiences,* New Riders Publishing, April 2001) does not seem precise enough.

Presumably, the type of creative process in this discipline would be properly located in the area between "interactive art" and—since it deals with a prescribed content—theater and film direction.

Intertainment

Artistic know-how, which was established as a discipline in (interactive) art, takes over a new field of deployment. It is of no importance whether the result is understood as art today or not; what is important is the emergence of a new field of activity for those who

possess this artistic know-how (the artists)—thus, a field of work in which those possessing this know-how can work precisely in domains custom suited to their talents, and not, for example, in the form of a part-time job making use of certain skills they have acquired in order to be able to return to their actual domain afterwards.

Intertainment designates this expanded area of deployment of artistic know-how between established disciplines.

It is precisely this artistic know-how that joins together content and mediation. Here, we're not talking about computer games, video-on-demand systems, or training simulators. It's not about entertainment, infotainment or edutainment. It's about Intertainment, whose immediate proximity to interactive art is documented, for example, in the Play Zone of the Millennium Dome (http://www.dome2000.co.uk/) just as it is in the exhibits of the Ars Electronica Center.

Exhibitions, museums and "experiences" are currently the chief venues in which the methods of Intertainment come into play.

Pixelspaces

Virtual environments (VEs) are a special form of Intertainment, and their production and development are a special type of artistic know-how. The creation of a VE such as a CAVE application implies a user—regardless of his background and level of experience—in a very particular way.

In a (virtual) space, in which there can be by definition neither a top and bottom nor a front and back, fundamental considerations like orientation and navigation are by no means a trivial problem. The issues of utility and comprehensibility are both preconditions and impediments.

Most VE applications make use of what have become conventional forms and more or less realistic depictions of reality. That this very often gives rise to architectural visualizations—spaces through which users can navigate—is based on the effort to make it easier for the user to navigate and orientate via parameters like top and bottom or front and back.

Virtual environments, however, are not a priori locked into utilizing our conceptions of space. We, the users and developers, are the ones who hold tight to these conceptions.

However, new approaches like those of the "subjective parameter of space" (see the text of the speech *VE Beyond the Object,* Dietmar Offenhuber http://futurelab.aec.at/pixel-spaces) show the possibilities of going beyond these conceptions of space.

Even if the initial signs of the end of VR applications as mere replicas of reality are already becoming evident, the level of development of our VEs is also comparable to that of the first automobile prototypes.

To the same extent that the methods of interaction and the language of form of the first automobiles resembled those of their predecessor, the horse-drawn carriage, the methods of interaction and the language of form of today's VEs correspond to those of real space. And the automobile did not set that heritage aside until it had become tremendously widespread.

An important contribution to the development of VEs is thus the spread and availability of these technologies. Today, we find ourselves on precisely this threshold of mass suitability. The first PC-based CAVE systems already exist. Game consoles are becoming ever more powerful and efficient. Virtual environments—auto-navigation systems, networked computer games, digital TV moderators—are increasingly pervading our everyday life.

It can well be expected that our receptors for the possibilities of VEs will develop—and the VEs themselves will adapt to this development—to the same extent that automobile design's vocabulary of form has developed and established itself.