

## The LISTEN Vision<sup>\*)</sup>

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The title of this text already makes it clear to us that our language possesses far fewer concepts whose roots are connected with hearing than with seeing. How then would you designate an acoustic vision? I would have been quite happy to make use of such a word for my title. Its absence is an indication of the fact that seeing (still) continues to dominate hearing in our culture.

### Idea

With the project LISTEN, whose attention is earmarked towards listening, we attempt to subvert the predominance of vision in that we bring hearing and seeing into a new relationship with each other. A central role is played in this endeavor by space, which structures our perception, as well as by our body, with which we explore space. With the LISTEN headphones, we immerse ourselves in a virtual auditory space. The actual space in which we are located is thereby extended in the form of a parallel, synthetic space. Through our moving about in this space, changes are brought about not only in our visual perspective in the real space, but also in our acoustic perspective in the virtual auditory space. In this way, actual space and auditory space blend in our perception into a new unity.

The special charm of the LISTEN idea lies in the fact that we can explore the virtual auditory space just as simply and directly as the real space – namely through movement. For that purpose we require nothing more than the LISTEN headphones, which constantly monitor the current position and direction of our head in the real space and convey the information to a computer system. The LISTEN software then calculates for the position of our ears in the real space a sort of dynamic, stereoscopic, acoustic image of the virtual auditory space which we can then perceive through the headphones.

That is a brief summary of the idea which was developed in 1996 in the division Visualization and Media Systems Design (VMSD) of the Institute for Media Communication (IMK) of the former German National Research Centre of Computer Science (GMD) in Sankt Augustin. At the urging of Martin Göbel, the head of VMSD, this idea was intended to be realized in the framework of an EU project, and so the search for partners began.

## Partner

It was possible to engage the Kunstmuseum Bonn as a first partner. The open-mindedness of its Director Dieter Ronte and his colleagues laid the foundation for a successful collaboration. Almost two years went by until at the end of 1999 the consortium was established and the project proposal was submitted to the EU. A second institute of the GMD, the Institute for Applied Information Technology (FIT), joined with the IMK. As European scientific partners it was possible to enter into association with the Institut de Recherche et Coordination Acoustique/Musique (IRCAM) of the Centre Georges Pompidou in Paris and also the Institute for Industrial Electronics and Material Science (IEMW) of the Technical University Vienna. The LISTEN idea was also convincing to AKG Acoustics in Vienna, the audio equipment manufacturer which as our industrial partner plays an important role in the consortium. Now all that was lacking was a positive decision on the part of the EU concerning financial support, which arrived during 2000, so that the project could finally get underway at the beginning of 2001. Now almost two and a half years later, the project is already approaching its conclusion at the end of 2003. We are close to the opening of the installation *Raumfaltung* ("Folded Space") by Beat Zoderer, in which an essential aspect of LISTEN, namely the utilization of the new technology as an artistic medium, will be introduced to a general audience.

## Vision

It was comparatively simple to develop the LISTEN idea. Only a few days were required to generate the basic formulation. The real challenge was subsequently to develop a common vision for the approximately hundred individuals who were involved in the project over a period of three years. It was necessary to bring together and to harmonize the quite different orientations of the partner institutions and the widespread personal interests of the various colleagues, but this diversity brought with it an inestimable enrichment for LISTEN. The mutual trust and the extraordinary personal involvement of everyone who provided input for this process made it possible to bring to life that which today we together call the LISTEN vision – that initial idea which was enriched by the experiences and dreams of all the participants.

But what is it exactly, this LISTEN vision, you may well ask. From every single LISTEN collaborator to whom you pose this question, you will get an answer that is more or less unique. It is exactly in this diversity that is to be found the strength of the project, for all those who have

worked on it know that we have just begun to scratch the surface of the possibilities offered by this new medium. The work on the project made it clear that we are not yet capable even of surveying or estimating the potential of the medium. Hence at this point I can only give a brief summary of my own vision. For me LISTEN represents above all the possibility of bringing body, space and sound into a mutual, composable relationship. Inasmuch as we always know the exact location of both ears of our listeners, we have available to us the following formative possibilities which characterize LISTEN as a new medium:

- The auditory event can be given a situational and individualized form: what one hears depends on where one is at the moment, where one was previously, how long one was in various places and what one heard there. The exact nature of what is being heard can thus be different for each listener.
- The tracking data can be used for the simulation of virtual sound sources to allow them to seem to be localized at their respective places, independently of the position of the listeners. Furthermore, the virtual acoustic space can be structured by invisible zones in which a particular acoustic signature predominates.
- Through the LISTEN headphones, even though on the one hand we are isolated from the actual acoustic space, on the other hand we are also freed from its natural acoustic limitations. It is possible to realize by means of LISTEN virtual auditory spaces and sound topographies which would be inconceivable under real acoustic conditions.

Alongside these main points there is a multiplicity of aspects which in the meantime have been discovered in the project and which provisionally we are incapable of pursuing, inasmuch as our attention first remains focused on the long-defined project goals. One of the most important of these is the realization of the installation *Raumfaltung* ("Folded Space"), which has confronted us with a significant artistic, scientific, technological and organizational challenge.

## Unfolding

After the Kunstmuseum Bonn had set up an initial collaboration with Beat Zoderer, it was clear to the LISTEN consortium that he was the artist which we had been looking for. On the basis of the experience of our first collaboration, Beat Zoderer created the installation *Raumfaltung*, which leaves much space for the unfolding of the LISTEN vision without thereby leaving it to be alone. The production of the installation turned into an interdisciplinary endeavor *par excellence*. At the suggestion of Beat Zoderer, the writer Oswald Egger created the textual level of the installation. The composer Ramón González-Arroyo and I are responsible for the musical level. Originally I intended as project coordinator to refrain from an artistic participation. But ultimately I could not resist the overwhelming attraction of *Raumfaltung*. Beat Zoderer's work came too close to the way of making artistic use of LISTEN which I myself had dreamed of during the definitional phase of the project. The collaboration during the production developed in the most fruitful manner that could be imagined, not least of all because all the participants were constantly concerned with assuring that the individual aspects of the work, i.e. installation, text and music, also be capable of functioning independently of each other: they thereby came to entwine all the more candidly. In the meantime the connectivities have become so numerous that even for us the installation still brings various surprises. It leaves us – along with you, we hope – full of excited anticipation with regard to the concrete empirical experience, which upon the printing of this catalogue was not yet possible and which still awaits us all.

More details about the LISTEN project are available at: <http://listen.imk.fhg.de>.

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\*) Appeared in: "Beat Zoderer – Der doppelte Boden ist tiefer als man denkt", ed. Kunstmuseum Bonn, exhibition catalogue and audio CD, Bonn, June 2003.