

“Acoustic Map” – an interactive cityportrait

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ABSTRACT

The “Acoustic Map” is an interactive soundinstallation developed for the “Hallakustika” Festival in Hall (Tyrolia, Austria) using the motion tracking software Eyes-Web and Max-MSP. For the NIME 07 a simulation of the motion tracking part of the original work will be shown.

Its aim was to create an interactive city portrait of the city of Hall and to offer the possibility to enhance six sites of the city on an acoustical basis with what I called an “acoustic zoom”.

1. “Acoustic Map”

The listener of this sound installation was surrounded by 5 loudspeakers. The sound material used consisted mainly of previously recordings from 5 specific sites of the city.



Figure 1. Hallakustika, Hall (Tyrolia, Austria) 2006

Each loudspeaker had a site from the city of Hall as origin of sound attributed. The assignment was based upon the geographical position of these sites (as seen from the city center).

When entering the installation, the natural near white noise of the nearby river Inn sounded from all of the loudspeakers. The closer a listener would get to one loudspeaker, the more the sound of the river was displaced by the sounds of the specific site assigned to the particular speaker.

1.1 Acoustic Zoom

Switching through up to 3 sound levels when approaching a loudspeaker and its assigned site of the city is a way of an acoustic approach to these sites. This is what I called an “acoustic zoom”.

Furthermore the sounds of these 3 levels were chosen upon distance considerations. That means that being far away from a speaker the sound one could hear resembled a far distance and when being close, closely recorded sounds could be heard.

1.2 Technical Realization

1.2.1 Software

Motion tracking: EyesWeb

Audio processing: Max-MSP

1.2.2 Hardware

1 PC, 1 Macintosh Computer, communicating via network (osc),
1 USB Webcam, 1 Mixer, 5 Loudspeakers

1.3 Motion Tracking

For the motion tracking we used the open source software “Eye Web”, which was developed at the InfoMus Lab (Laboratorio di Informatica Musicale) at the University of Genua, Italy.

The camera which was attached to the top of the room took a picture of the empty room. The purpose of this picture was to act as a referee. The software compared the reference picture with the actual live picture and recognised differences.

Every moving difference was defined an object and the data of their movements was transferred via osc to the audio patch. The Parameters “Q Scale Factor” and the “Q Threshold” factor (Fig. 3) gave us the possibility to readjust the actual capturing process.

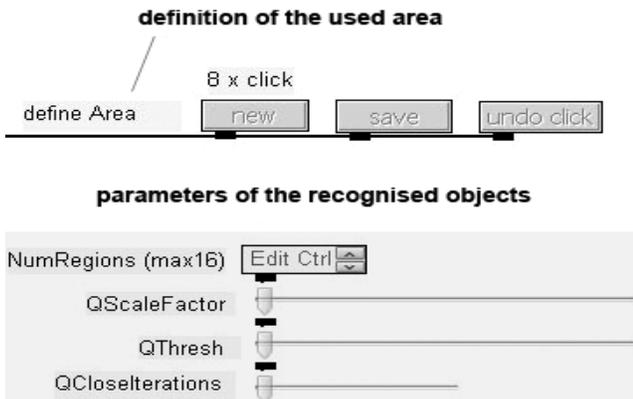


Figure 3. Extract from the Eyes Web patch (by M.Saravia)

1.4 Audio Processing

The patch consists of a coordination input (pink point = one recognised object and its position and five sound modules (with four sample players each).

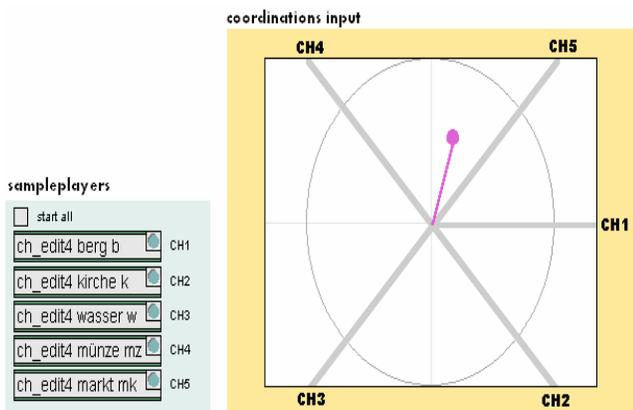


Figure 4. Max-MSP patch (by W.Musil)

1.4.1 Amplitude & Distance

2 subwindows (Figure 4) show the amplitude of the 5 Loudspeakers and the distance of the listener to the loudspeaker.

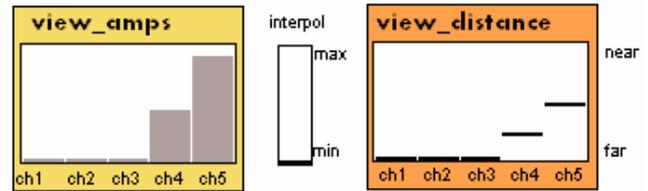


Figure 4. amps & distance windows

1.4.2 Sample players

On the left side (Fig. 5) there are the sample players which constantly play and loop the loaded sound file. Depending on the position of the person moving around in the installation the patch fades between the loaded sound files.

To smooth this process there is one volume- and one filter frequency envelope for every sampler (see Fig. 5 the grey stripe in the middle).

The blue stripe on top (Fig. 5) shows the distance information of one person to the particular loudspeaker, left: far – right: near. For example: at Position 1 the sound file loaded in sample player 1 is slowly faded out, while the frequency of a high pass filter is enhanced to smooth the fade to the file in sample player 2

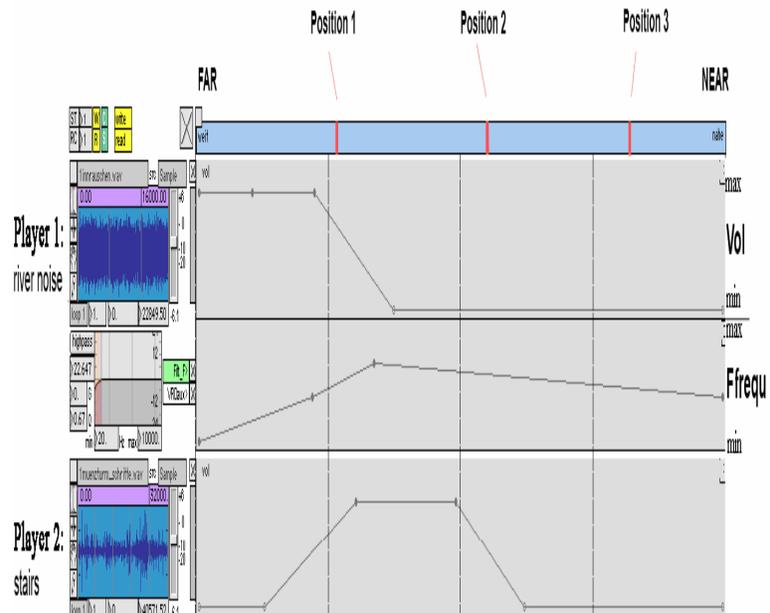


Figure 5. Sample player Screenshot