

# **SILHOUETTE**

## **The City IS an Instrument**

...and a composer and musician at the same time. "Silhouette" is an auto-composing installation driven by city sounds, events and views.

### **A city, composing**

Every city has its unique layout, its unique sounds and its unique times and places of activity. These factors tell a whole story and can be used to describe a city to a certain extent.

Similarly, a piece of music can be seen as a spectral and timed (rhythmical) layout, unique sounds (different sets of instruments in different parts of the arrangement) and a very unique pattern of activity (tempo and rhythmical shifts, crescendo, decrescendo, etc.).

So it should be possible to map these two instances onto each other. Or in other words, it should be possible to enable the city to compose its own, unique and always changing piece of music.

### **"Silhouette", a short description**

Before you are able to create any kind of mapping, i.e. predefined relations between the city's properties and the resulting composition, there are some decisions to be taken: a city is an enormous pool of information to choose from.

In addition to that you always have to take into account that any relation you create has to be perceptible by the audience. At least the audience has to have a chance of finding out about the predefined interconnections.

Thus, a major goal is to find some simple but nevertheless descriptive properties that easily translate into a rich soundscape.

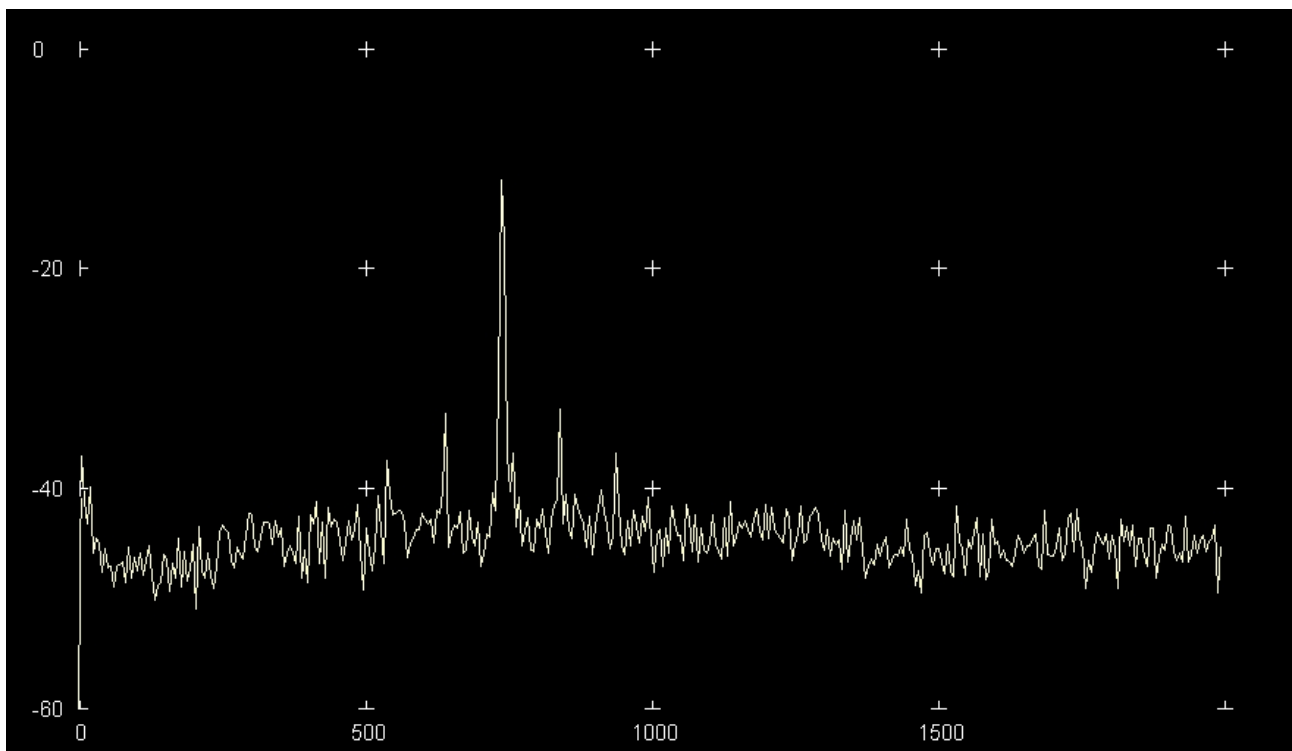
## Spectrum <-> Silhouette

One of the most distinctive sights of any city is its silhouette. Depending on the viewpoint it depicts a more or less well known and often easily recognizable part of a city.



*Silhouette of Zürich*

Its similarity to an audio spectrum is obvious.



*Soundspectrum (randomly chosen)*

In addition to its uniqueness and its possibility for straightforward mapping, a city's silhouette has another very interesting property: **it changes gradually**. After sunset, the shapes of the buildings fade into darkness and the silhouette is formed solely by the city's lights. Accordingly, the spectral shape of the produced sound changes in a 24 h rhythm. And even more, weather and occasional building activity (it just depends how long the installation is active :) will also influence the timbre.

A camera is mounted on a high vantage point to film a view of the city and some of its activities. The silhouette is detected from the resulting image, translated into filter coefficients and rendered back onto the video image to be seen by the audience.

## **Activity <-> Rhythm**

Every city has its unique rhythm composed by its inhabitants beyond the mere succession of night and day. One possible way to catch a glimpse of this is to film from a high viewpoint and choose some "hotspots" to analyse. If you choose the viewpoint carefully, you can definitely use the same live video stream for the hotspots as for analysing the silhouette.

The detected activity is directly translated into rhythmic changes - the more activity, the livelier and faster the generated composition gets. On the other hand, low activity generates slow and calm music.

## **Live Recording Locations <-> Instrumental Arrangement**

The third important part of any composition are the instruments used. Their tonality and arrangement make up the colour of the music. Similar to its activity patterns, every city generates its unique sounds - so the instrumentation and arrangement are already provided by its inhabitants.

These live recorded sounds are broadcast (via internet, cable – see below) to the installation site from various points in the city, where they are processed and incorporated into the live composition. Thus they make up the complete instrumentation of the piece of music.

The sounds can and should be a mixture of:

- places of interest throughout the city (Grossmünster, Paradeplatz, SWX, etc.) - equipped with a microphone - streamed live over the internet
- live streams of festival performances
- already existing internet live streams
- sounds recorded by microphones surrounding the installation site, connected directly with the computer via plain XLR cable

## **Bringing it together**

There has to be one installation site, a closed room, where the live camera stream and all audio streams come together. Here, the audience can watch the live video (with the rendered silhouette) and listen to the generated audio. The following example will illustrate this.

## **Example: Silhouette at Hallakustika**

June 2006 (<http://www.hallakustika.at>)

In 2006 the multimedia arts festival "Hallakustika", held in Hall in Tirol (Austria), announced a cooperation with the University of Music and Performing Arts Vienna. The project "Silhouette" was one of the installations chosen for presentation.

A big challenge was the surrounding provided. As the festival was located at different points throughout the medieval town of Hall, there were a few locations to choose from. In the end, the old "Stadtsaal" located directly in the centre of the town was picked.



*"Silhouette"*

To preserve the unique "flair" of the room, the installation was directly incorporated into the given surrounding. 5 old TV sets were chosen rather than a single video beamer and placed neatly on 5 tables. 5 loudspeakers (one for every live signal) were arranged behind the TV-sets and a subwoofer placed directly below the painting of a working man. Everything appeared ready for the weekly "Kaffeejause" to begin.



A "beautysht"



Florian Kindlinger mounting the camera

## Audio

One of the most important sounds for Hall in Tirol is water. In medieval times, the city grew rich by mining salt and shipping it (as well as silver from the nearby city of Schwaz) anywhere via the nearby river Inn. Hence, 2 of the 5 chosen streams were to be of water (a nearby brook as well as the river Inn). The other 3 streams were taken directly from the town centre.

The water, 4 nearby churches, the traffic and passengers of the lively centre of the town provided the basis for the following example:

listen to: <http://stb.sil.at/silhouette/silhouette.mp3>

This sample was taken during daylight. You hear the repeating water patterns, and the rhythmic and acoustic changes triggered by the town's sounds.



*The detected silhouette on one of the TV sets - kept very trashy and pixelated to fit the style of the monitor.*

Technically, the detected silhouette is directly translated into filter coefficients. You can picture it like a piano, its layout stretched along the X axis across the screen - to the left the low registers, the higher registers to the right.

If the Y value is higher on one given key (point on the X axis), the amplitude of the correlated frequency is higher. Therefore, if the silhouette is detected in the mountains (this can happen in special light situations - especially very hard, strong light) the sound can be very different (and much louder) than, e.g., during the night, when only the lights provide distinguishable boundaries and the sound can grow very low and quiet.

### **The Installation**

Over the course of the three days of the festival "Silhouette" gave the inhabitants the possibility to rediscover their own town, the visitors a very special way of experiencing Hall and provided some unique musical moments.