

Craving, a Spatial Audio Narrative

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ABSTRACT

In this paper, we describe the staging of a play which unfolds interactively while the listeners are wandering through a high-rise area on their own, wearing headphones and a mobile computing device.

1. INTRODUCTION

In *Craving* Bernhard Garnicig and Gottfried Haider aurally stage the late Sarah Kane's (1971 – 1999) play "Crave" in public space. Through headphones and a portable computer, aware of the listener's position through sensor technology and equipped with a customised spatial sound simulation, the text is placed in Vienna's "Donaustradt" district as a composition for voice and sound. There, the listener drifts through a radically changed environment, in which the limits between reality and production blur.

2. CONTEXT

Behind the walls that shape the city and within the minds of strangers passing by in public space, things happen that we know nothing about. Sarah Kane's "Crave" offers insight into the lives and minds of four sketchy characters. What they reveal from their hearts and inner thoughts is exemplary for the processes behind the anonymous faces surrounding us. Her phrases, sometimes seeming like mere scraps of thought, and the loosely structured narrative reflect our very own inner voice that shadows us night and day.

*"A: Only love can save me and love has destroyed me."
(Sarah Kane: "Crave", 1998)*

The space we live in influences our perception and behaviours in a major way. We adapt our movements, thinking and emotions to its structural requirements. The urban soundscape's dynamics defy control. To cope with the resulting chaos we apply strategies to delimit our intake of information. The media is a significant part of these strategies. In the context of urban design the visual in its various forms – ranging from advertising design to architecture – has prevailed and resulted in the development of diverse stylistic elements and textures. Despite the uninterrupted presence of every

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4th International Mobile Music Workshop, May 6–8, 2007, Amsterdam, The Netherlands.
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noise imaginable in our civic habitat the cities' resonating space and the ever transforming noise, however, have been left unattended. This seems almost reasonable considering that most of it is unconsciously emitted waste, a signal at best, but in any case lacking deliberate texture or control. Nevertheless, ever since the advent of the transistor radio, people have used sound represented in music to shape their individual selective reality. This phenomenon is the foundation of the artists' work, as they transform a strategy of selective constriction into an extension of the perceptible.

*"M: Absence sleeps between the buildings at night."
(Sarah Kane: "Crave", 1998)*

Today's culture has us moving through the city driven by specific rationally comprehensible goals. Places associated with different functions and results are starting point and destination on our way through a public space, which itself is dominated by the infrastructure necessary to dispatch humans and goods. This utilitarian pattern of behaviour leads to a partial dullness when presented with new stimuli as well as to the meaning and value of differences. The majority of the elements that make up a city are perceived as repetitive and futile. *Craving* opposes this phenomenon by offering the possibility of a fundamental change in the perception of the self-evident. Through the concerted construction of situations for specific places and with regard to the randomness of movements, events and changes these locations are exposed to, the artists create a new gestalt of the environment, only by manipulating the site's soundscape, and invite us to discover a reality transcending mere purpose.

*"A: I don't have music, Christ I wish I had music but all I have is words."
(Sarah Kane: "Crave", 1998)*

3. PROCESS

By simulating perspective (binaural) listening, the artists blend voice and sound sources into the participant's soundscape like a *Trompe l'oreille*. These sources are scenically affiliated to specific locations in the area and can be directed both spatially and temporally. The origin of these sources can be acoustically located because the entire range of human movement as well as the auditory physiology are incorporated into the spatial sound rendering. The resulting soundscape is composed of the location's *actual* ambient sounds and the *constructed* overlay, generating an extended reality that feels just like a real-time recording of the place surrounding the listener. Following the situationist *dérive*, the participant is supposed to allow himself to be led by the ambience of these sites, thereby forming his own narrative sequence in the act of walking.

An environmental analysis conducted beforehand resulted in the creation of a geographical and emotional map of the Viennese „Donaustadt“, which contributed to the process of mapping Kane's drama and additional sound to the emotional state of the area. This was accomplished loosely based on the principles of psychogeography (cognitive mapping). All numerically ascertainable qualities were recorded with a custom developed data logging device. In addition to the existing topography, different architecture related data, such as the sites' temperature patterns, people's common movement paths or the location of closed-circuit television cameras resulted in a three dimensional map of the site.

“*In girum imus nocte et consumimur igni.*” (Anonymous
palindrome)
(We walk in circles at night and are consumed by fire.)

4. SPACE

The artists' production is staged in *Vienna DC*, a modern complex of tall commercial and residential buildings in the city's *Donaustadt* district. This most preeminent area is defined by a branch of the river Danube in the south and the United Nations building in the north. This building once stood for modernity in an architectural as well as geopolitical sense, but lately has received more attention for its contamination with asbestos. The actual setting, *Vienna DC*, was conceived in its entirety on the drawing board in 1991 after plans for a World Fair on the very same spot had been vetoed in a referendum that same year. Nevertheless, ten years after its opening, the area is still *urbanity in progress* as various vacant lots create a layered surface, whose heaps of dirt contrast with the spotless facades otherwise dominating the view.

The place is not only housing multinational corporations and information technology firms in the obvious office skyscrapers, but there are also vivid residential zones scattered in between. One can literally walk around a corner to see the number of suits diminished and people leading their lives in a slower and more informal way. There is a bizarre city within, whose 4000 inhabitants have adapted to the given system of open spaces and the spatial logic of the complex. For them the architects envisioned a place of worship (coined *Gebetsreaktor – prayer reactor*), a most out of place museum exhibiting works of an Austrian sculptor, a bilingual school and kindergarten, an ordinary supermarket, a number of expensive cafés located in the lobbies of skyscrapers, and a restaurant.

Other unique architectural features also have a strong influence on the perception of the space: e.g. a wide flight of stairs leading up to nothing, surveillance cameras placed at eye level, deserted children's playgrounds or a vast empty space whose floor is covered in glaring white paint.

This entire microcosm allows the artists to use the place's emotional tectonics and possible associations while breaking with the normal patterns of movement, perception and interaction with the environment and other people.

5. REALISATION & TECHNOLOGY

The participant is equipped with a portable computer and headphones. Customized software determines his position via GPS, tracks his head- and body movements through a gyroscope

and accelerometer and based on their results renders the audio composition in real-time. Through the simulation of binaural hearing sounds previously affiliated to certain places now become audible from their specific direction. The software incorporates a *real-time virtual acoustic environment* rendering engine, developed by the NASA Ames Research Center. It is based on a head-related transfer function (HRTF), describing how a given sound input (parameterized as frequency and source location) is filtered by the diffraction and reflection properties of the torso, head and pinna before reaching eardrum and inner ear. These location-specific filter effects provide the human neural system with enough cues to properly locate the sound's source. Through the realistic simulation of these effects it is now possible to place "invisible actors" and sound emitting props into the listener's environment and allow him to immerse himself in the theatrical composition.

The process of composition consists of positioning monophonic sound sources in the geographic coordinate system, assessing their acoustic, spatial and temporal properties, and setting up interaction between multiple sources and the listener. The result is a script of the whole scenery which can be read by computers. The framework allows for timing and keyframe animation of all relevant parameters. This way, for example, a voice can follow an animated path after being triggered by the approaching listener. The underlying technology enables the artists to work in any place on earth to create site-specific narrative compositions.

6. ACKNOWLEDGMENTS

Our thanks to Julia Mews for her careful and extensive editing of our original draft.

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