

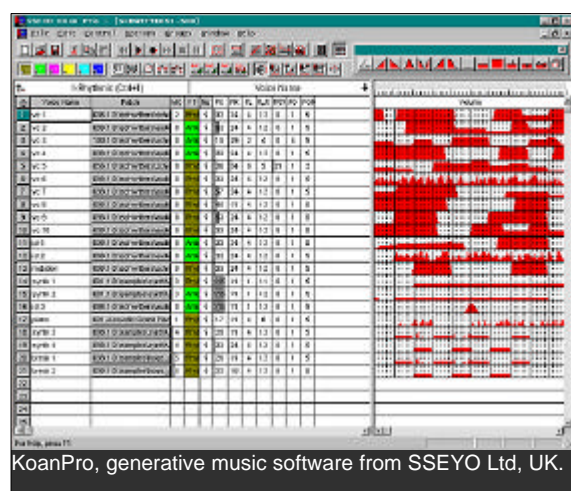
## Sound and score

Given the interleaving affect of the libretto, the idea for the score was to create an ebb and flow of found sounds and music, in part, informed by the aural landscape of the environments the opera was set in. Its creation would also be informed by the technologies available to both deliver and have it heard via the Internet.

Early 1995 I began working with the notion of a score that would be non-repetitive, that would be some how be different for every performance, both via the Internet and in real-time. The ideas were largely fostered by my experiments with improvised, systems compositions in the 80s. They would take the form of real-time audio collage and would also send me on a parallel research path: generative music and real-time, interactive compositions for performance and streaming via the Web.

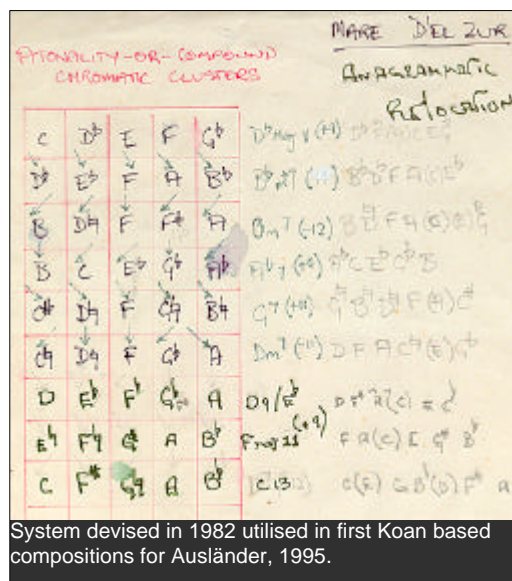
I wrote about these ideas in the papers: *Generation: A Digital Aesthetic* (April 1996); *Generative Sound for Interactive Media* (October 1996); and *Theatre as Suspended Space* (March 1997). *Generative Sound for Interactive Media* was rewritten and published under the title, *Lost Time Accidents (Some Such,* December 1996).

I was interested in the non-linear, non-repetitive nature of these possible sound works. These would be compositions working as metaphors for the notion of journey - dangerous, unpredictable, foreign and uncertain freedoms – the concepts that I would deal with personally in Europe and write about in my journals.



sustains its market place by the cultivation of audiences whose ears are tuned to their pockets. This in turn sustains an industry that controls not only what we hear, but the artists who must churn out endless variations of the same. I explored these tangents in the papers, *The Politics of Dissonance* (March 1997), and *Breaking the Loop* (December 1997).

I experimented with a number of techniques, each attempting to provide an audio experience on the web with the least amount of customisation. Having come to this project with a public access media background, I was very conscious of the need to provide for an experience that would be broadly accessible.



In several of my papers I talk about the software package, KoanPro, which has influenced my work since early 1995. It was the first piece of software I felt I could use as a kind of collaborator. It worked with me and I with it. It would seed it with musical ideas and sound files (samples) and it would in-turn provide me with fresh possibilities. Here was a piece of software designed to create generative music with. I would turn it into a sound processor.

The more I worked with Koan, the more I began to question the idea of repetition in our musical landscape. Repetition, it seems, is at the heart of what drives the music industry. It

The problem I had was how to create a generative soundscape for an online work that could be experienced by PC/Mac and Netscape/Explorer users. They should not have to download and install software they would have no use for elsewhere, and they would not have to make alterations to their hardware.

I was to find that this would not be possible until the turn of the century, but even at the time of writing there are still issues of incompatibility at the heart of the software we must use to access the web with.

I began with simple MIDI files embedded within web pages. This ensured that anyone with a PC and soundcard would hear my composition. These would play as soon as a web page opened within a browser. Both of the popular browsers provided support for embedded MIDI, .wav and .aif files. However, the quality of sounds that came with soundcards at that time varied so much that it was near on impossible to create anything that didn't sound like a toy.

Koan's Audio plugin technology meant that one could play pieces created with KoanPro via a web browser. It used the sample principle as MIDI files, being that it was reliant on the sound banks that came with standard sound cards. At the time, I was using a Turtle Beach Tropez, which came with 12Mgs of memory and an excellent General MIDI sound set. However, it was not possible to replicate the pieces I was producing with this card on another person's computer. However, I could stream them via a RealAudio server, both on-demand and in real-time. This was one solution, but along came the SoundFont.

SoundFonts were developed by Creative Labs as an attempt to create a standard for the distribution and playback of original samples. Sounds could be grouped into banks and saved as a single file, a SoundFont. These would then be stored in memory on the soundcard. The Koan Audio plugin could download SoundFonts from a web site onto a Creative Labs soundcard and replay your piece in the way that it was intended to sound. This was a breakthrough, but was still very much reliant on a specific combination of hardware, operating system and software.

Before I could even begin to design sound for *Ausländer*, I had delivery issues to deal with. Streaming audio intrigued me, so I began to look for ways to utilise this within *Ausländer*. A Melbourne based ISP dedicated to streaming audio, WiredAudio, understood what I was trying to do and provided me with the infrastructure support I needed to experiment with on-demand and live RealAudio projects. It would become possible to combine my interests in generative music with that of tools that would make it possible to perform to international locations without ever leaving my studio. As I began to develop my first streaming projects, I found little interest for them in Australia. Where I could not find an audience in Australia, I found few obstacles for this work Australia.

## ORF/KunstRadio

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L TO R Andrew Garton, Sergio Messina, Scanner. Networked Theremin performance with Moscow and Berlin. Touchless 1, Recycling the Future, KunstRadio/ORF, Wien, Austria, 1997. Photo. E Zimmermann

ORF is the Upper Austria Broadcasting Corporation. KunstRadio (translated as ArtRadio) is a national radio arts program broadcasting from the ORF studios in Vienna. KunstRadio is described as "...an on-air gallery for live and recorded projects. Radio is the site, content and context of art. The exploration of radio as a constantly changing constituent medium in the contemporary mediascape."

I met KunstRadio founder and producer, Heidi Grundmann, in March 1997. Heidi invited me to participate in the forthcoming *Recycling the Future* (RtF) events celebrating a decade of KunstRadio. The first collaboration, *FUTUREScan*, was a live performance of generative

soundscapes netcast from Toy Satellite, to *DocumentaX/Hybrid Workspace*, Kassel, Germany (see *Outcomes*).

The next project was realised at *Ars Electronica 97*, Linz, Austria. KunstRadio invited me to attend the festival where I coordinated a second netcast from Toy Satellite, *Malaise / Unsound / SASS* (see *Outcomes*). I also participated in an eight hour, live to air and netcast performance. I joined composers and sound artists from Italy, Germany, Quebec, Slovenia and Austria performing the impromptu piece, *Golden Boomerang Machine*.

### *Long Radio Night*

[online] <http://thing.at/orfkunstradio/FUTURE/ARS/RADNITE/> [Accessed July 2000]

KunstRadio is "...an agency for the realisation of artistic projects connecting radio to other material and immaterial public art spaces."<sup>1</sup> It bridges traditional communications media with the new, utilising arts practice to guide this relationship. The projects we worked on together gave me many opportunities within which to experiment with the emerging technologies I had wanted to utilise for *Ausländer*.



Recycling the Future Netcast Studio, ORF, Vienna. Photo. E Zimmermann

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<sup>1</sup> [online] <http://thing.at/orfkunstradio/> [Accessed July 2000].

## Sensorium Dial

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In December of that year I returned to Austria to participate in the final of the RtF series of projects, installations and lectures held at the ORF studios. My installation, *Sensorium Dial*, was placed in the foyer of the Grosse Sendesaal, RadioKulturhaus, which caused both amusement, for myself, and frustration for ORF management.

*Sensorium Dial* was derived from radio frequencies drawn together by twenty antique radio receivers. A subtle and ever changing composition comprised of tunings made between licensed bandwidth carriers - free and yet to be commodified sound space.

The installation would explore the silences amidst the frequencies that articulate the ebb and flow of radio broadcasting in Europe. The silences represented what remains of that space which existed prior to the emergence of the first publicly accessible communications network, a community of listeners bound to each other by glowing valves and tissue-thin speaker cones, and no less by the crisis of Europe's tumultuous history through which radio matured.

It was a sonic wash of howls, screeches and noise. Given the size of the transformers in each of these radios, the magnetic field created by them would create wild, crazy, audible disturbances in the soundscape when ever someone walked within a one metre radius of the installation. People could interact with the installation merely by walking up to it or by waving ones hands around a single radio.

Here was a kind of generative soundscape, changing in real-time according to the proximity of passersby and atmospheric changes within the foyer. It was not unlike a Theremin (see Theremin), although somewhat indelicate. Every morning I would arrive at ORF and have to turn the installation back on. Every evening someone would turn it off, not turn it down, but turn it off at the powerpoint. There were complaints from ORF management about the *noise* and how it interfered with the running of the activities they generally dealt with in their foyer. Fortunately, the installation remained for the duration of RtF, but due to technical difficulties, we were unable to stream the project in its entirety. I had contact and lapel mikes taped and/or inserted into most of the radios.

### *Sensorium Dial*

[online] <http://thing.at/orfkunstradio/FUTURE/RTF/INSTALLATIONS/SENSORIUM/sensorium.html> [Accessed July 2000]



## Theremin song

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On my return from the MA Research Tour, February – March 1997, I spent a week or so in London. One fine, sunny day, I met up with friends from Australia, and spent the day at Camden Markets. We were wandering through the markets when suddenly we were drawn to an uncanny sound wafting out of the catacombs where a few stalls had been placed. There, amidst an array of bizarre objects stood Tony Bassett.

Tony built Theremins<sup>2</sup>. I had never seen one, but had heard them often enough over the years. Here was an instrument that responded to physical gestures without touching a thing. Body capacitance is used as a controller for this instrument, freeing the performer from a fixed intonation and keyboards. I bought one straight away.

The Theremin, or termen-vox, was conceived and built by the Russian inventor, Lev Sergejewitsch Termen in 1919. The first production model of the Theremin was built in 1920. It consisted of two ariels, one for pitch, the other for volume or velocity. As you moved your hands closer to either ariel you would alter pitch and velocity. The sound it created, by way of an oscillator, was often compared to a voice or violin.

The fact that the Theremin had its origins in Russia gave it natural home in the soundscape and score that was emerging for *Ausländer*. I returned to Europe with it December of that year performed in a radio concert for three Theremin players.

[online]

<http://thing.at/orfkunstradio/FUTURE/RTF/LANA/TOUCHLESS/> [Accessed July 2000]

In 1998 I met three Russian Theremin players when eight of us were brought to Austria to perform *Touchless*, a composition for Theremin Orchestra and voice by Elisabeth Schimana.

[online] <http://thing.at/orfkunstradio/PROJECTS/TOUCHLESS/> [Accessed July 2000]



International Theremin Orchestra, Ars Electronica, 1998.

When I returned from the *Touchless*, I composed two pieces for Theremin, *Lung Fish* and *Donnerstag Remains*.

*Lung Fish* was commissioned by the Percy Grainger Museum. The composition was built from a generative underscore with looped Theremin samples. It was played at the International Melbourne Festival, 1998, at public re-opening of the Museum.

Austrians have had a long fascination with telecommunications and the arts. Radio in particular has, in the short time of a decade, created somewhat of a tradition in collaborative use of wireless and online technologies. In 1979, Heidi Grundmann, founder of the experimental radio program, KunstRadio, and then an arts journalist, participated in what many consider to be first modem and radio art events. Whilst on-air, the announcer read messages ground out of a dot-matrix printer, messages posted to a BBS at the radio station.

*Donnerstag Remains* is based on an interview with Heidi. The recording had undergone various permutations, largely out of my control. I had lost the original recording and had to cobble what I could from a heavily compressed RealAudio. The underscore is a duet with Theremin and KoanPro.

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<sup>2</sup> Lev Sergeivitch Teremin and the Theremin [online] [http://www.obsolete.com/120\\_years/machines/theremin/](http://www.obsolete.com/120_years/machines/theremin/) [Accessed July 2000].



Gunther, Touchless 2, Krems, Austria, 1998.

The Theremin is an interactive, gestural controller. A very simple, but effective instrument that not only influenced aspects of *Ausländer's* sound design, it became an important inspiration in the interactive design of our interface.

With a computer it's you, the screen and a mouse. Most sound based software is designed around more conventional devices, replicating dials and faders. I find the slider, knob metaphor an unrealistic approach to interface design when one basically has a mouse to control everything with. Knobs and sliders are designed to be tactile. You turn them this way and that. A mouse is not designed to turn something, particularly as it requires a flat surface to work on. It's like trying to draw with a brick.

So why are people not designing interfaces that are specific to the medium of the computer? Why could not a computer interface be as simple and as graceful as a Theremin? I wanted to replace the mouse with a Theremin. Though not necessarily possible at the time, it did influence the general direction we took when it came to designing the *Ausländer* interface. As an interactive instrument, the Theremin influenced more the interface than it did the sound design.



The Tony Basset Theremin used in *Ausländer*.