these works do not feature any kind of representation. Spatialization techniques such as panning and reverberation, their playback generates a ‘live’ presentation of an acoustic space. Similarly, appreciation of Early Evening. Summer. Deguny results from the viewers experience of the interactions of the complex sonic and visual information within the space.

Thus, despite being a fixed-media piece, by focussing on ‘noise’ and ‘presentation’ the fulfilment of this work is not the video itself, but the interactions between video, viewer and presentation space generated on playback. The piece could therefore be viewed just as much an installation, with claims to site specificity, as it is a video artwork. So although the work has a specific length with a stance, with claims to site specificity, as it is a video viewer and presentation space generated on playback. Not the video itself, but the interactions between video, listener and presentation. The presentation of the complex sonic and visual information within the space.

6. REFERENCES


SYNESTHESIA: COMPOSING FROM IMAGES WITH NOISE SHAPING SYNTHESIS

Antonio D’Amato
Conservatorio Statale di Musica “D. Cimarosa” di Avellino - Italia

The artist investigates here the decomposition of the light spectrum in separate components:

La composition reprend le motif iconique du Disque, isolé par Robert sous la forme d’une cible optique en 1913 (coll. priv.). Le module géant est démultiplié en anneaux colorés chatoyant de toutes les couleurs du prisme, qui absorbent tout la surface, l’unifient et annulent toute perspective. Née de la simple observation par l’artiste des transformations des couleurs et des formes imposées par l’éclairage électrique... [3]

2. SOUND FROM IMAGES

The question was how to transform or derive music from images.

A similar process could be adopted in a sound processing algorithm by separating a complex spectrum – i.e. white or filtered noise, or any other synthesized complex spectrum - into separate components.

Furthermore, an inverse process could be adopted in a sound-generating algorithm, by synthesizing a sound from separate components, derived from the content of an image, where different pixel locations in the frame represent different frequencies.

The first part of the composing process was the following: graphically isolating some elements of the painting, and afterwards transforming these images into single sounds where their intensity was given by the luminance factor and their frequency from pixel locations.

It could be considered a noise-based synthesis, since it generates original sounds from images as output. It was not a mechanical process because it was clearly possible to experiment variants adopting as source material images modified with any image-processing software as the well-known Photoshop or similar ones. Moreover, it is possible to limit the bandwidth of the noise-shaping process, or even adopt a linear or logarithmic scale in the location/pitch conversion. Consequently, a wide range of different results is possible. A further option in some cases involved a reverse process converting wildly- transformed sounds into images again, then processing them again as images and turning them back finally into the audio domain.

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The second step consisted in a montage of successive or overlapping sound elements, and here I chose to be totally free from any conditioning factor, or derived data.

3. DSP ALGORITHMS

The third and last step was quite an elaboration of the crude sound elements through successive dsp algorithms, implemented also in a recursive flow, where the output of a process is injected into the same process again with the same or different parameter settings, with the aim of achieving variants and derivation from the same source, in a sort of filiation chain in order to balance coherence and variety. Along with some more usual processing such as equalization, dynamic compression, reverberation and gain alteration, other more complex dsp algorithms were implemented.

3.1. Dynamic Elaboration

Along with standard compression or expansion, a more creative and flexible processing was implemented: two variable intensity thresholds were set in the way of dividing the audio program into three level bands: loud, medium level and low level components. The process consists of altering the balance of the three bands or even suppressing one or two of them. This simple but effective approach is capable of radically redefining the character of the sound, bringing out any hidden or imperceptible components.

3.2. Elaboration of Frequencies and Pitches

The elaboration of frequencies was the main goal of various different processes. First a transposing algorithm was largely implemented, with the option of altering or not the allocation of formant regions. A really effective and interesting outcome was achieved by creating glissandos together with the simultaneous inverse glissando of the formant regions. A further development consisted of the spectrum rearranging of single audio events setting a non-constant transposing factor along the audio band: i.e starting from a 2 (one octave up) transposing factor at the bottom end of the audio band, and gradually bringing that factor to a value of 0.5 at the top of the band, so that the high extreme frequencies will sound one octave lower than the incoming signal. Another more creative process simply was the addition or subtraction of a constant frequency to the entire frequency to the entire frequency.

4. REFERENCES

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Sonia Delaunay (1885-1979) - Prisms électriques, 1914.

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3.3. Delays

Some different types of delay are employed. One of these consists of a variable stack reaching the limit of 128 separate delays distributed in a non-constant space of maximum six seconds. The gain itself of each delay line is manipulated in order to achieve a crescendo or a decrescendo as the global result. Another more creative management of delays was the overlapping of more delays, each of them not time-coherent along the spectrum: i.e on a delay line set in the middle frequencies at 0.5 seconds, the bass end had a delay set at 0.3 sec, and the top end at 0.7 sec. That kind of manipulation involved the shattering of any impulsive or fast attack, along with some extreme filtering, and a sort of sliding effect like a continuous glissando, depending both on the incoming signal as well as on the setting and overlapping of delay lines. In some isolated moments, the output of that process was injected in a granularization module in order to achieve a subtle and mutant texture.

4. REFERENCES