SOUND REDEVLOPMENT - AN APPRAISAL

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For The Attention Of:	Sound Designers Everywhere!
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Computer based sound design is necessary to counter traditional strategies within composition by advancing the cross development of genre-specific cognitive and emotional stimulus, thus challenging purist notions and preconceptions pertaining to popular culture and academia.

All music genres have a well-defined set of sonic & structural characteristics. Some genres are developed by, but limited to the fusion of certain identifiable characteristics from two or more existing genres or particular synthesis models.

Even Electroacoustic sound design & composition in its purist form is easily identifiable. But also, has a wealth of underlying power and flexibility for unique sound redevelopment and for re-defining what is acceptable in popular culture. I feel that much of this power is not being unleashed.

Many Acousmatic compositions rely too heavily on PVOC transformation of and subsequent reversal of bell-like and metallic sounds. Such source material is desirable because harmonically, it produces very pure results when transformed substantially over time.

In my opinion it is time to refocus the application of computer sound design tools, by not only transforming harmonically richer source materials, but also people's notions on what is popular culture and what is academia.

Electroacoustic sound design is the only model capable of encompassing all others.

By the very nature of its implementation, the output of all other models is acceptable as the input for its model.

Electroacoustic transformation tools & algorithmic synthesis models provide the power necessary to generate sonic data unachievable by more conventional synthesis and sound design editing models.

If the transformation output is represented individually then you have a single sound that can last a considerable amount of time, often equal to the amount of time normally conceived to be a complete track in many other genres, for example, 3 to 5 minutes.

Depending on the source and algorithmic process chosen, a single sound output can often be regarded as a complete track due to the dynamics and perceived morphology of harmonics over an extended period of time.

Several outputs from several transformations can be combined in the form of an arrangement. Too often this is clearly identifiable as a purist electro-acoustic work.

Or is it?

If the resulting output is what I perceive as typical of the Electroacoustic genre, (likened in a way to 'presets' on a conventional synthesizer), transformed bells, metals, clicks, PVOC and Granular processing of vocals etc. then the answer is "yes".

But if the resulting output is the product of more variable input and more subtle or more thoroughly researched algorithms and input, then the answer could be "no" - or "maybe"

- or "I'm not sure" even! Which is where definition, application, debate and consequent research gets really interesting.

More specifically, the output might be the 'spark' for inventing a new genre or re-inventing a given genre.

As an example I would like to refer to the genre development undertaken by Peter Green and myself implementing Electroacoustic Sound Design to re-conceptualize acceptably useful strategies - 1995 to 1998. (2004 will see further developments).

In 1995 we undertook a project that would challenge the listener into categorizing the project based on the musical forms present in the compositions. The key to this challenge lay in the transformations. Were they an extension of their origin or completely independent and sonically unique? And if independent, how would the listener classify the composition? Hence we would challenge purist notions. The idea was not to be purist but to exhibit the results as difficult to define in terms of perceived origin and so cause the listener to struggle with a definition. Often referred to as 'pigeon-holing'.

The point is that Electroacoustic music, through its algorithmic sound design interface, can redefine itself as a globally all-encompassing format by blurring perceptions via the processing of the input and the way the resulting output references the input if the input in its original form is identifiable as a specific sound style or music genre and the output 'hints' at its origin or completely redefines it.

The application of such output in a cultural context is very exciting considering the technological advances in the following areas: movies, gaming, artificial intelligence, virtual environments, dance music production and surround sound installations.

Composition and sound design within the realms of 'underground,' electronic / computer

music is advancing at a greater rate than Electroacoustic composition. One can sense the developments within these areas of sound design edging closer to what has been acceptable in purist Electroacoustic music for some time. But more poignantly, the developments happening outside of Electroacoustic disciplines are far more interesting to observe because they carry with them a huge melting pot of ideas void of purist notions. They are striving to evolve the whole time, while comparatively Electroacoustic sound design seems content to manipulate consistently similar input using a limited range of processes thus producing an output that once upon a time was inspiring but is now becoming tiring.

Computers are available to just about anyone. More importantly computing power is available to just about anyone. If the composers of popular music could experience the potential for Electroacoustic sound design, I am convinced they would embrace it because the CPU requirements are readily available in many modern home computers on which they are already composing popular music.

The main obstacles to this scenario are present in the steep learning curve of such systems and particularly the interface. Many systems employ command line code entry, C language based programming or object orientated interfaces where the sound designer needs a level of computer programming familiarity not required in the 'hands-on' synthesis techniques of popular music production.

In time more accessible and intuitive Graphical User Interfaces (GUI's) will surely be developed. And if so, the doors of academia will be wide open to producers of popular music. Fairly primitive examples of this principle exist in the VST Plug-in format of tools such as the GRM suite that is readily integrated into systems such as Cubase and whose sonic signature is very identifiable and present in a lot of currently emerging home computer music. Consider also the popularity of some Vocoder effects that were recently rife throughout popular music. Limited results, but an intuitive interface.

Another example is the ability of programs such as Sonic Foundry's ACID and it's sophisticated time-stretch algorithm that even a novice can manipulate simply by dragging a sequenced loop to match grid points on a tempo grid in the arrange window, often without any perceivable loss in quality or musicality.

Using a more sophisticated code or object based system, that is also capable of more sophisticated manipulation, would require substantially more effort and perhaps trial and error based on decisions regarding parameter entry, to accomplish a task that in the mind of the ACID user is in fact a very simple one. Its simplicity is in the interface, generating parameter entry and calculations in the background.

20 years of DJ experience and 16 years synthesis and production experience at the cutting edge has taught me that leading composers of popular music are always searching for that elusive sound, sample or effect. So they can stand out from the crowd.

Electroacoustic sound design has the power to unleash a multitude of new directions. But it must not be forgotten that, as it exists in its purist form, it has the tendency to produce 'preset' output if not explored thoroughly enough. Often regurgitating previous results that have an easily identifiable signature relating to the process used. These principles often apply in the disciplines of non-transformational synthesis and is the reason many sound designers are encouraged to explore Electroacoustic tools.

A lot of Electroacoustic works are justifiably subject to the same scrutiny as for example wave-table synthesis that is limited in flexibility by the origin of the waveform. It is difficult to manipulate a Tabla sample beyond all recognition using wave-table synthesis as compared to multiplying pure waveforms as in additive synthesis, where the resulting sound is far removed from sinusoidal tone or white noise.

If Electroacoustic sound design continues to manipulate consistently similar source material (waves), using the same old algorithms (synthesis), then it has little hope of advancing itself as a genre. It has to advance.

Electroacoustic music in its purist form has a very defined characteristic style like all genres. But also, its potential for crossover and integration is far superior compared with other genres due to the very flexible nature of its algorithmic synthesis models and transformation techniques. The ability to define any source material as the input and batch process multiple sources through the same process outstrips primitive waveform based synthesis.

Since my introduction to Electroacoustic sound design back in 1995, I have noted that too many compositions rely too heavily on the transformation of metallic & bell-like source material. I suggest that this is down to the ease and quality with which the harmonics of such source material can be manipulated, particularly using very generic PVOC time-stretch algorithms and granular synthesis models. Maybe it's because early pioneers of the genre were limited in what they had available both sonically and by way of processing; therefore the genre was defined around these sounds.

Electroacoustic sound design needs to move on from this 'preset' sounding style and explore source material generated by other sources; other genres even. Particularly rhythmical and sequential sonic data prevalent in analogue / electronic and digitally produced computer generated dance music that exists inside and outside of popular culture.

When the source material used for Electroacoustic sound design is in the form of mixed multi-layered sequences and rhythmical sections, it allows for a far broader harmonic and dynamic range that consequently achieves broader manipulation possibilities due to the fuller frequency range and envelope activity available in such source material.

Also, this kind of input increases the potential for subtle and brutal digital distortions.

Academically such distortions can be perceived as a distortion of what is acceptable in the domain of Electroacoustic composition and sound design. The notion often being that Electroacoustic output should be clean and shiny!

When the output of such transformations are combined with the input source and presented to the listener in a culturally popular club environment, it immediately stands out as something new and interesting. Often described as 'Sci-fi'.

Such interpretation allows the designer to explore deeper the processes of Electroacoustic sound design and develop output as a form of stimulus that deliberately triggers an emotive response in the mind of the observer.

The environment is an important consideration. An active and often euphoric club environment will evoke different emotive responses to that of a civilized seated multi-speaker diffusion presentation.

Seated Diffusion performances without visual stimulus are far more difficult to concentrate on than when a visual stimulus is available. Like for example a simple flashing light in a club.

In October 1996 Peter Green and myself were involved in a Sonic Arts Network tour presenting the same electroacoustic work at each event.

We noticed that during the first presentation heads began to move, fingers were scratching, whispers emerged and concentration was being shifted away from the music,

after only a few minutes.

The next day we spent 20 minutes filming a running stream of water. Zooming in and blurring the image just enough to disguise the origin. The result was edited down to 10 minutes of watery blue blur with slight perceptions of subtle movement in the center.

For the next performance we projected this 'video' onto a screen at the front of the auditorium. For 10 minutes we once again observed the audience. This time we had secured their devoted attention.

Visual stimulus is a very powerful function in the role of sound, even when the stimulus is extremely minimal. This is one area where sound design will be very important, almost architecturally in terms of virtual environments and installations.

Dance hall / club environments already stand dramatically on the edge of change. It must be only a short matter of time before surround sound format installations are commonplace as the preferred format to project digitally presented music. Could such a change coincide with the advent of Electroacoustic sound design finding a regular foothold in popular music?

Electroacoustic music presents itself best by way of live diffusion or premeditated arrangement and production. It lends itself very suitably to the surround sound format - Sound transformation that literally transforms across and around the speakers. The art of Diffusion could become the next popular DJ method. This is another example of the interpolation of academia and popular culture.

As a DJ, I long ago visualized a production where a combination of Electroacoustic sound design transformations (outputs) 'dance' around a centralized, traditional stereo mix of accepted genre-specific rhythms and bass lines (inputs).

Peter Green and myself pioneered this format back in 1995 with the release of the track '105 Cornucopian' on the *Beyond The Box EP, Machine Codes Code D*. The production was limited to a stereo mix but wide stereo imaging was implemented at sound design level to enhance the illusion of a wider stereo field effect.

Dave Robinson, assistant editor of the publication *Future Music (issue 37)* published a full-page article championing our innovation.

Follow up experiments proved difficult to present in a club environment where the emphasis is on dancing. This was due to more challenging transformation of perceived rhythmical elements. Thus breaking the flow. The dancer became part-time dancer and part-time observer and sometimes, full time observer. This is an interesting point because we had unwittingly shifted the context of the role of rhythmical sound in the context of a club environment. The audience had to engage a shift in strategy and observe the music rather than just 'feed' off it. The stimulus was shifted and the emotive response shifted with it. The origins of the once accessible rhythms were still present but in transformation and morphological format.

I would suggest that sound designs engaged in more subtle transformation of rhythmical and sequenced data will enable the dancer to keep moving thus reflecting his/her own perception of the transformation on the self. Also, more complex transformations can be presented in the same work, 'dancing' around not only the centralized rhythmical sounds, but also the surround system itself.

It is an interesting thought that one could perceive a reversal of roles between the sound 'system' and the dancer. The sound system is no longer static. It expresses a kinetic-like energy as sounds interplay with different speakers in the surround field. The dancer on the other hand, might stop moving and become static in order to absorb the full impact of the sonic experience that he / she is surrounded by.

In this scenario, academic sound design now bridges popular culture, artistic interpretation and self-expression. Self-expression could be in the form of the dancer 'chasing' or dancing with the movement of the transformations. Or in terms of the designer exploiting the sound system to express the movement contained in the transformations.

Through such sound design implementation and compositional techniques the gap between academia and popular culture can indeed be bridged.
