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### A SOUND FUTURE (PART 1)

By Charlie Richmond

Share with me a dilemma for a moment, and then let me know if I'm lost in the reverb. Sound designers have been waiting for a long time for a system which allows us to create soundscapes easily, almost intuitively: a system which would perform as a transparent extension of our desires, a tool which requires no interpretation between wish and result.

Of necessity, such a system would incorporate a device commonly known as a computer, although certainly in a more 'transparent' form than the one computers have generally taken for the last 20 years; most artists don't usually find expression easy through a computer keyboard. I have been watching with intense curiosity the many forms that the most commonly computerized theatre design area has been taking. Computerized lighting has developed into a very powerful and reliable technology, yet incorporates somewhat less than current computer capabilities. My perception is that this is a result of the continued use of certain conventions which were established during the earlier years of more primitive operating systems.

Obviously people are hard at work developing new approaches but it still remains curious that the most exciting aspects of the more advanced systems have not been embraced. One of these is the concept of 'What You See Is What You Get' (WYSIWYG) exemplified by the current explosion of desktop publishing software. Or maybe there's a reason for this: just exactly what is it you are 'getting' when sound is designed? For example, just exactly how are you going to graphically show a cue 'going' or, more basically, a tape deck starting or a loudspeaker switching on? Perhaps those are too easy: just point at the picture of the deck and click the mouse button and the (graphically represented) reels will start turning, click again and they will stop. Great, but what if it's a cart machine, and what about all the different types of loudspeakers? All of a sudden, I start seeing a lot of work for our software people and a delivery date of some time in the 1990's for a customized system. So, we end up with something in between.

If we accept that the ideal is still unobtainable (or more properly stated unaffordable), just where is the happy medium between cost and a system which genuinely improves the designer's productivity? Looking again at lighting, it seems that graphics are being under utilized by most current systems. For example, given the relatively small number of different types of instruments, it seems that a menu of types, graphically displayed, could be available to assign to dimmers or patch circuits so that the designer (or operator) could quickly see (and select) the complement of instruments within cues. Colour also, is an extremely important element in lighting, yet no one seems to use colour capabilities to identify circuit, dimmer, or

cue colour characteristics. Finally, since lighting is an essentially visual medium, it seems that endless possibilities exist within the display capabilities of the video monitor.

The most comprehensive possibility might be the mocking up of the stage set on the video monitor and then programming the show by 'lighting' it on the monitor. While we're at it, let's put moving actors on and provide views from different seating positions. Actually, considering the cost of some of the lighting systems, such a situation is certainly not out of the question! What does this have to do with sound, you ask? I am using this illustration as an example so that you can answer for me (and for yourself) 'What is the sound designer's version of this?' I'm not really sure of the detailed answer, although it would require a very comprehensive multichannel sound system with plenty of digital electronics. It would certainly be a more expensive system than the one the designer has available in the theatre and would require more complex software to create an artificial acoustical environment.

Referring to lighting again, I find it increasingly curious that numerals alone continue to be used to represent the levels of hundreds of dimmers. Posed with a similar requirement but using a larger amount of data by a factor of ten, a sea of numbers swimming around the screen seemed to be a very non-intuitive way of presenting a tremendous amount of information. Why not use small graphic representations of common audio devices such as faders and switches to quickly show the relative levels and settings of many channels simultaneously? Then we could allow the user to quickly select one of these for more detailed observation, a bit like a magnifying glass. But switches and faders are only the physical entities which have been previously used to create electronic responses to our wishes. Perhaps there is a more graphic manner of expressing 'increase volume' and 'switch this on.'

In the theatre we want to be able to send any audio source to any combination of outputs at varying volume levels in such a manner as a giant matrix allows. Maybe we should be able to display a big picture of the loudspeaker representing the output in which we want to increase the volume. We could represent the overall volume of the loudspeaker by changing the overall size (volume!) of the graphic representation. But we actually have many different sound sources, from microphones to tape decks, being sent to this loudspeaker. Maybe we could show smaller pictures of the sources inside the loudspeaker and change their size to indicate their relative volumes. Conversely, we could show a large picture of a source, say a specific microphone, and inside it representations of all the different loudspeakers to which it is being sent. Then we could change the overall volume/size of that source as well as the volume/size of the loudspeakers show within it.

Great. Of course we would have to include numbers or labels inside each of these pictures just to make sure everything is being correctly identified. Also, any change made to a specific loudspeaker volume from within the mic picture must be correspondingly adjusted for the microphone volume within the

specific loudspeaker graphic. All of this is technically feasible right now, so if you're thinking 'Why hasn't someone done this?' the answer is easy: money . . . and a few other problems. For example, how do we tell the computer which of the many pictures we want to see and focus on and how should they all be organized spatially? Also, how do we handle a myriad of other functions which start cropping up as soon as we start designing one cue after another and want to put them in a logical order, edit them, and provide smoothly timed transitions between them?

All of these problems could be dealt with through graphic solutions similar to the above exercise, but the fact remains that this is very much uncharted territory and is a considerably more difficult program to write than normal. The fact that theatre people are by nature creative and innovative makes me feel hopeful that we will provide important developments in the areas of human/machine interface, especially now that such incredibly powerful graphic based microcomputer systems are becoming commonplace.

In the meantime, I have to say that my own solution to the immediate problem is one of basic expediency: a computer based graphic representation of a virtual control panel of enormous proportions (considerably larger than any physical console one would want to control) in order that a very large number of inputs and outputs can be completely manipulated. Volumes are controlled by faders and switches look like switches, but who knows what the next incarnation of the software will be? The most incredible aspect of software-based systems is that the computer and its programming can be updated or replaced completely, giving the designer and operator the feeling of a brand new system, yet the hardware may not need any alteration whatsoever! I really feel we have finally arrived at the future.

Let's hear from you if you have any ideas on this subject. In my next column I want to deal with the other end of the human/machine interface, i.e. not how the computer tells the designer what it's doing but how the designer tells the computer what to do.

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