

from:
**SPATIAL CONSIDERATIONS AND THEIR COMPOSITIONAL APPLICATIONS
IN SELECTED ELECTROACOUSTIC MUSIC COMPOSITIONS OF SCOTT A. WYATT
BY JINOK CHO**

3.4. Specialized Two-Dimensional Sound Positioning

Wyatt has developed specific techniques to locate sound images that appear to originate from inside of the listening space, which seems to emanate from a source other than the loudspeakers themselves. This process makes the sound image seem as if it is coming from points near listener where no loudspeakers are positioned. Normally, the remaining horizontal and distance cues used by composers and audio engineers for both stereo and multi-channel environments present sound images that seem as though they emanate only from the location of the loudspeakers themselves. While most audio applications that make similar effects require the use of a binaural delivery system (headphones, which present no crosstalk interference) or couple specific hardware and software to produce similar effect, the approach that Wyatt uses creates effective outcome within different host listening spaces. In order to realize the technique, Wyatt does the following:

First of all, he experiments with various types of recorded or created sound sources: mono point source, pseudo stereo, true stereo and expanded stereo images (pseudo stereo and expanded stereo sounds are made by adding small amounts of time delay to one of the stereo channels). He then experiments with any of the following processes:

Process Type I

- *copying one channel from the original source and inverting the copied source*
- *adjusting the dynamic: attenuating or amplifying the copied source*
- *manipulating a channel location slightly: changing the stereo-field location or stereo field width*
- *applying time delay to the copied source: a few milliseconds, and then*
- *mixing the copied source with original source*

Process Type II

- *copying both channels from the original source and inverting the copied source*
- *performing steps 2-5 of Process Type I*

Process Type III

- *copying mono source and positioning in both channels (pseudo or 2 channel mono) and inverting the copied source*
- *performing steps 2-5 of Process Type I*

The basic principle of this technique rests in controlling the phase cancellation of the sound images and minimizing crosstalk contamination of the listening space. The

outcome of these processes is different based on the size and design of the listening space, the location of the audience, and the characteristics of the sound source material. The effectiveness of such a technique or process is often enhanced by juxtaposing a sound source appearing to emanate directly from a loudspeaker location with a sound image appearing to come from the side or behind the listener where no loudspeakers are positioned.