MAX as an Overall Control Mechanism for Multi-Discipline Installation Art

Charles Bestor
Director, Electronic and Computer Music Studios
University of Massachusetts
Amherst, MA 01003, USA
fax: 413-545-2092
e-mail: bestor@music.umass.edu
Telephone: 413/545-4698

Abstract
Installation art aims to establish a self-defining artistic universe, a landscape of the imagination, enclosed within a self-contained sculptural space which the audience enters, and, by the act of entering, becomes a part of. This paper deals with the use of MAX as an overall control mechanism for the coordination of the various musical elements involved in an installation piece.

Paper
Installation art can perhaps best be thought of as art that defines space; art that inhabits space, that appropriates space to its own artistic ends. The space itself, and the artifacts within it, become the work of art, a self-defining universe of the artists’ imagining which the viewer, by the act of entering, becomes a part of.

The physically defining elements of an installation’s space are typically sculptural, but frequently a musical score, often electronic, is included as a component of the work and occasionally a theatrical-type lighting plot is added to simulate an element of movement within the sculpture. The musical score and lighting plot often include aleatoric, chance elements in order to eliminate, or at least mitigate, the repetitiveness that is the inevitable result of the way in which art, including installation art, is typically exhibited to the public; eight hours a day, six days a week. Occasionally the entire artistic complex is designed to be to some extent responsive to the gestures and the movements of the audience within the structure.

The essence of installation art is that, unlike a painting, a landscape painting, for instance, one not only looks at it but one actually enters it and becomes, oneself, a part of it. Like a painting, however, it is a landscape of the imagination, a landscape that exists only in the mind of the artist, or artists, who created it and, by the act of their making it art, in the experience of the viewer — who, in the case of multi-discipline installation art, may also be a listener.

Every work of art, of course, creates its own reality. The artist, in the act of creating art, takes the realities of his or her own experience — the realities of the outside, so-called “real” world, and the realities of his or her own internal, personal world — and manipulates these into a new vision of reality, a vision through which his or her audience experiences the reality, the artistic reality, that the artist has created. Art is in fact often spoken of as “a different way of looking at reality”, and in the presence of great art one’s entire way of looking at the world is changed; one never sees the world, or oneself — one never experiences reality again, in quite the same way. This is, of course, the nature of art in general. When dealing with installation art, however, a number of special issues arise, issues that are unique to a multi-discipline, multi-dimensional art form. In the first place, the installation artist has to create a composite reality which, by its artistic intensity, becomes a genuine reality which the audience can share, a reality that it literally becomes a part of. In a sense, a very real sense, the viewer (and the listener), by his or her presence within the sculptural space,
becomes a part of the sculpture itself. It is not so much that one suspends reality when one enters the landscape of an installation but that this landscape becomes, in fact, a reality of which one is a part. For the time one is within it, this is the world and the world is it.

Installation art is, almost by definition, a composite art form, one in which the installation artist, unlike the artist in most other disciplines, is no longer alone with his or her own art. Like opera, for instance, there are all sorts of other artists involved in the creative enterprise, with equal claim to the attention of the audience, and with whom one must not only come to terms, but whose artistic ideas must be made central to one’s own creative vision if the composite work is indeed to become a work of art. The musical score for a work of installation art must therefore satisfy a number of demands not normally met with in a piece of concert music. For one thing, the music has to run continuously, hour after hour and day after day. Furthermore, since it is a part of a larger artistic complex, it has to conform to the program of the installation itself, or at least it has to try to find musical analogs for the visual symbols embodied in the physical structure. And while the musical score does not necessarily have to be spatially articulated, the fact of its being projected in a space through which the audience moves -- and often these spaces are very large indeed -- the temptation to provide for musical movement within the sculptural space, in counterpoint to the movement of the other sculptural elements and of the audience itself, is almost irresistible.

It is in the nature of installation music that it does not have a beginning or an end. It begins, for the viewer, when he or she enters the installation and it ends when the viewer leaves. With tape, one does not have much alternative but to create a work that starts when it starts and repeats itself endlessly. With a computer-driven score, however, there is the possibility not only of writing a continuous, non-repeating score, but one that can easily be moved in spatial counterpoint throughout the sculptural space.

Figure 1

Figure 2

Figure 1 is a MAX patch from a recent installation piece entitled “Cycles”, by the fibre sculptor Barbara Cornell, the lighting designer John Wade and the author. In this patch, a series of six controlled-random sequences are generated in a sort of pseudo-canone, with the first starting at 0 seconds, the second at 5 seconds,
and so forth. The mechanics of this level of the patch will be relatively self-evident to those familiar with MAX: (1) "Metro(some)" generates a pulse (Bang) every 1000 ms. These Bangs are counted by (appropriately) a (2) "Counter" which outputs an integer corresponding to the number of times it has been banged since the "Metro" started. (3) "Select" recognizes the integers that have been programmed into it: when it receives the number 5, which in this case represents 5 seconds, it sends out a Bang of its own which starts "Voice#1", and so forth. When it receives number 25 it sends out a Bang which turns off all the voices and 7000 ms later, (4) after all the voices have shut down, it turns off the whole mechanism.

All of the 6 voices look like Figure 2, a nested patch at the next lowest hierarchical level, except that each voice sends on a different MIDI channel and each calls up a different synthesizer program. (1) "Metro" in this case generates random numbers between 1-12, to which 50 is added, which yields a random series of integers between 51-62. These correspond to the MIDI pitch numbers D2 through D3; each of the 6 voices is programmed to play, randomly, within a 12-tone series at a different range. (2) At the same time "Metro" is also generating random numbers between 1-60 (actually between 5-65 after 5 has been added) which randomizes the attack velocity of each note. (3) Also at the same time, the rhythm of the basic "Metro", the central heart beat of the entire mechanism, is being randomly altered. Every 500 ms a random number between 1-3 is being generated, which is multiplied by 100 to yield a random sequence of 100s, 200s and 300s which are fed into the controlling "Metro" as random rhythmic pulses-- each Bang of the "Metro" will be randomly either 100, 200 or 300 ms long -- thus randomizing the rhythm of the entire musical complex.

Figure 3

Figure 4

Figure 5

****
Figure 3 is exactly the same basic patch but with a more sophisticated method of pitch selection. The pitches themselves are drawn from a (4) "Table" which is controlling a random walk, in MAX appropriately referred to as a (5) "Drunk", with each successive note being either immediately above or below the preceding note. In this case the term "immediately" is actually a range or randomly selected intervals between 0 and 8va, as defined by the Table. These intervals, incidentally, are also different for each of the 6 voices. When played, this patch produces a sort of free six-voice jazz improvisation.

When each of the 6 voices starts, in turn, a "Cresc" subpatch, Figure 4, is activated for each of them. (1) Every 20 ms this "Metro" steps through a (2) "Table" of increasing values from 0-127, these values being sent out as (3) Controller messages, the MIDI controller for volume, thus producing a crescendo lasting exactly 2540 ms (30.5127). At the end of the musical section a "Decresc" subpatch is activated which works in exactly the same way except that it sends out decreasing Controller values.

Figure 5 is an entirely different patch from the same installation piece. It is a good deal freer rhythmically, from an entirely different musical persuasion, in fact, which shows rather clearly just how stylistically neutral MAX really is. (1) Here the note durations can be from 1-500 ms, or anything in between, with each pitch calling up a different synthesizer voice (2), all distributed randomly throughout a six-position speaker field (3). The result is not unlike what Weburn might have produced on an off day.

The overall formal structure of the musical score for this installation was pre-composed, as were the main thematic pillars of the piece. The aleatoric sections, similar to the ones above, were in fact mini-developments, carrying out variations on the musical materials of the pre-composed sections that immediately preceded them.

Figure 6 is a page from the next-to-the-highest control level of the score for the "Cycles" installation. At the highest level a Metro is counting seconds which a Counter is counting, and on the 807th second, and again on the 840th and the 890th and so on, an event is triggered. Some of these events, (1) RW-CF2 for instance, have been pre-composed and stored in a sequencer, and some of them, (2) IRSc, are semi-aleatoric, similar to the previous algorithm. (3) At 990 a "reset" is triggered which begins the whole cycle over again.

ICMC Proceedings 1993 225