

Computer Music Subcultures and Their Assumptions

We have grown to see, and accept as natural, that digital technology will transform every aspect of our life and culture. This fact is now so self-evident that it's quite easy to forget that such an assumption is a very recent development. The computer, and digital technology in general, to a greater degree than any previous technology, is all-pervasive, protean, and universal in application — it obviously has become the core technique of our era, transforming every field imaginable. Actions as unlike as designing a building, buying a new couch, calling a friend in another city, and listening to music just a few years ago had little material basis in common; now it seems natural that they all are performed with the same device.

There are, to be sure, built-in biases inherent in this technological juggernaut, which has had a characteristic and deforming aspect on many areas of economic, social and cultural practice. But in another sense, the universality and radical adaptability of digital technique means that in many fields its impact has been to amplify or accelerate processes that were already in motion within each particular domain. In particular, the roles that technology has played in certain artistic and musical traditions is in many ways most influenced by assumptions and practices inherent in each tradition itself that were in play before computers were introduced.

I'm going to look at three different musical traditions that have embraced the computer as a means to transform and continue their own processes: The European or euro-centric art music tradition; the popular traditions of hip-hop and electronic dance music; and the American experimental music tradition, the cultural thread which I feel most closely aligned with. I want to look at the manner in which each of these traditions has taken up the technology, and to point out the power of unexamined and unseen assumptions underlying their practices.

In the European or euro-centric art music tradition before the introduction of computers, there was already a strong movement toward a kind of musical abstraction. This process of abstraction, in which the computer fit so well, could be thought of as a kind of "neutralization", an emphasis on removing irregularities and

contingencies, all in aid of enhancing the options and freedom of the independent composer. The goal: the freest possible play of the composer's imagination, unconstrained by any material, physical, political, human or traditional limitations.

So, for example, under older just or well-tempered tuning systems, different keys would each have a distinctive intonational coloration, with a body of knowledge about the characteristic emotional affects of each key. In Equal Temperament these differences were eliminated completely. Later serial 12-tone composition schemes further move the emphasis to the composer, providing a completely neutral system where there are no longer even any traditional notions of scales and keys at all. The trend increases with the further parameterization of yet more aspects of the compositional object that we find in the work of Messiaen, Boulez, Stockhausen and so on, where we start to see schemes that seem to be crying out for the use of a computer.

The pinnacle of this tendency the ultimate expression of this move towards objectification and parameterization is music completely synthesized on the computer, in which a composition is completely specified on the "atomic" (sample) level. In this conception the computer is idealized as a neutral and perfect servant of the composer's will.

Rather than any particularly inspirational or creative capabilities of the computer, it was more mundane accounting powers that were seen to be of use: the machines' abilities to keep track of large amounts of data, to handle repeated tasks with minor variations, to control machinery with precision. The computer came to serve as a sort of armature, in which the compositional object could be studied, sculpted, polished, refined, and "handled" like a physical thing. We're so used to doing this now that we've forgotten how strange that really is! In that sense it represents a movement away from thinking of music as a stream, as something ephemeral, that moves in time and is made right now on the spot. And it also de-emphasizes music's eternal basic nature as a social practice.

These affordances proved useful in the quest for perfection, abstraction and control that colored this tradition. The computer-based music that first emerged from this tradition in the 60's and 70's often focused primarily on expressions and demonstrations of a new-found power: an emphasis on smooth timbral transformations, whose

very smoothness serves as an icon of ease and control; and the performance of miraculous transformations, say, slowly turning a violin sound into a flock of birds, for example.

As well, the computer's ability to provide performances of perfect temporal precision fits in with the idea that all the interest is really in the composition, in the composer's intent, and in this light, getting rid of imperfect human performers, who may mangle complex rhythms and tricky passages, seems like an unalloyed good thing. This is the notion of the computer as the best performer, as the clearest glass available to see into the composer's mind.

These practices represent just one way to conceptualize the musical/technical relationship; in the emergence of hip-hop and electronic dance music we see a whole different set of assumptions, a different set of responses to technology. In those traditions there is a perhaps what can be described as a more organic response, a direct response to the physical nature of the technology itself. I think in the high art music tradition there is a response or subscription to the dream of what the technology is; there's an acceptance of what the engineer says the computer is, and it is used in the same way an engineer thinks of it. Whereas in Hip Hop and Electronic Dance Music, at least at the beginning, we had musicians confronting new instruments, new objects as things in the world which had a color and nature of their own, and they were interested in making use of what they could actually do.

So a sampler might come from a manufacturer who thought of it as "an orchestra in a box", and from an engineering point of view was trying to get the most accurate reproduction of musical instruments possible — for a traditional purpose, making some kind of traditional music just with a new ease and speed. Hip hop musicians got these machines and recognized what at first the creators of them did not: that these were new instruments with new possibilities for a new music.

They misused them, they re-purposed them, they discovered the true nature of these new physical artifacts, independent of the engineers' intents, independent of the dream of what they were. This cultural process is similar to what happened earlier with the turntable. DJ's incorporated into their music the real physical properties of the

turntable itself, the surface noise from the records, the ability to scratch, to manipulate the discs themselves to make new sounds and new rhythms — things inherent in the material situation. So while, broadly speaking, these pop musicians are mere consumers of pre-existing products, they were, in the new ways they used them, re-shapers of them, re-inventors of them.

So if I can characterize this way to incorporate computers in musicmaking, it is doing just what one would do in exploring the possibilities of any other physical object. There's a heightened sense of materiality, of human beings engaging with particular artifacts, of bricolage.

A third stream, with yet another and different conception of how computers might be used musically, is the tradition that I feel I'm part of, the San Francisco Bay Area experimental music scene, in which digital technology was seen as a way to introduce complexity and unpredictability into the music. The Bay Area has always been a place where different cultural threads intermingle pretty freely. The context in the late 70s and early 80s that I and my friends started working in, when we hit upon the idea of computer network music, drew very strongly from two main sources:

- improvisation. By improvisation I mean a wide range of active influences in the area, from jazz, free jazz, things that were happening in improvisational punk rock bands at the time, to hippie drum circles, the improvisation elements present in traditional Japanese, Indian and Korean music.

- the American experimental tradition. At this point in time — and of course John Cage is a huge figure in this movement — there was a move away from the idea that the composer's taste and the composer's decisions are the most important element of music. It was a move towards work that was about setting up situations where interesting things that were beyond the composer's intent would happen.

Of course there is a long line of American experimental work that led to this point of view; from Charles Ives Symphony No. 4, in which he simulates the passing of two uncoordinated marching bands in a parade, through Henry Cowell, John Cage, Alvin Lucier and more. Most specifically relevant to us was the electronic work of David Tudor;

who would build ad hoc networks of electronic devices. Each composition would be defined by the circuit diagram, the patch diagram of a tangle of equipment, and the music itself was the trace of the behavior of this network. This is a powerful idea, a very dominant idea at that time.

I think that our contribution, in building The League of Automatic Music Composers and later The Hub, early computer network bands, was the incorporation of this "hands off" aesthetic, this interest in emergent behavior, with the idea of improvisation as being a social form of that same thing. We saw that a social network itself has emergent behavior, has interesting behaviors that are beyond the control of the individuals involved in it. As in a good conversation, I don't know what I'll say next, because I'm responding to what you're going to say next, and I don't know what that is. The thread, the meaning of the conversation is constantly emerging, unknown in advance to any of the the participants. So the combination these two ideas: the emergent behavior of electronic networks, and the emergent behavior of social networks of musicians working together is the intellectual underpinning of the network music band.

The immediate antecedent to the network band would be situations where people would get together, playing, hooking together analog synthesizers and other electronic junk and home-built circuits into big patches to see what would happen. We would all bring our equipment, doing more or less what David Tudor had been doing, but communally. And the late Jim Horton — my band mate in the League of Automatic Music Composers — was the first one who thought of incorporating some of the single board microcomputers which became available at the time into these kind of networks.

So we had a different motivation for using digital technology than either the art music tradition or the hip-hop tradition. We looked upon digital technology as providing a source of complexity, a source of unpredictability, as providing us with a means to create systems that would reliably exhibit interesting behavior on their own. We wanted to incorporate them into our existing social/improvisational/electronic networks, to make their overall behavior more intelligent and interesting.

These little one-board microcomputers were really not like anything we think of a computer today at all; in terms of processing

power they were about on the level of a coffee pot, or computer mouse today — and certainly far less than anybody's phone! But they didn't have to be — they weren't serving this "armature" function I spoke of earlier. The music was never seen as being in the computer. In this usage, the computer is a component in a network consisting of people, of other instruments, and of other electronics. The music is the emergent behavior of this whole system of interaction.

So this tradition shares certain aspects of the materiality that was happening in hiphop, an intent to make music whose very nature was based on what is at hand. And unlike the compositional tradition behind academic computer music — which was trying to remove contingencies — we were trying to create them, and explore the nature of contingency and mutual influence itself as a core aesthetic value. And of course it was always about live performance.

At the time we thought that this would be the new way that people would be making music, that this partnership with new artificial intelligences was going to sweep the world. And we thought of ourselves, in a sense, as not technologists at all, but more as folk musicians, tied to a place — and our place happened to include Silicon Valley. The technologies we were using were not made for cultural or artistic purposes; there was no cultural overlay of built-in musical intent in the components and materials we were building our instrument networks from.

We were naive. We thought that we could repurpose technology, that that was the radical task at hand, that we would shape the meaning of the technology ourselves. Of course, no one had any sense of what was lying ahead, and technology's immense power to change human society. The fact is that now none of us really know what technology is, and how deeply it will change what it means to be human. Artists — especially technically oriented artists — are in danger of becoming servants of a force beyond human direction, a situation I would call cultural technocracy. I would call on artists to not become unthinking cheerleaders for "the new," but rather to remember the fact I've tried to demonstrate in these remarks: that technologies are amplifiers of our pre-existing visions and inner assumptions, and our imaginations are free to set the conditions for the emerging future.

— Tim Perkis, November 2010