

# **Aesthetic Problems of Net Music**

Brian Kane, Columbia University (bk2246@columbia.edu)

**Abstract:** This paper addresses issues involved in the formation of an aesthetics of Net music. The main factors considered are: 1) the affordances of networked communications, 2) digital ontology and de-differentiation, and 3) the lack of an essential relationship between digital ontology and its medium of realization. By focusing on cognitive, affective and sensory results of the mappings (or algorithms) that link digital ontology with its medium of realization, this paper outlines an aesthetics of Net music, and suggests some strategies for the creation of Net musical works.

## **1 Net Music**

More than just downloading songs and peer-to-peer file sharing, the term "Net music" describes a broad variety of musical activities and projects in which, according to Golo Föllmer, "the specifics of electronic networks leave considerable traces" on the process, aesthetic, or the reception of musical works and sound projects. [Föllmer 2005: 185] Concretely, this covers an enormous range of musical and sound art activity, including but not limited to: web crawlers that hunt down sound files and algorithmically organize them into sound collages; sites that read web pages and translate the data stream into live audio; virtual instruments that users manipulate online; autonomous sound toys; "jam" sessions in cyberspace; on-line sound installations that continuously broadcast across the web; and live performance situations where players can be half-way across the world, performing together with streaming audio over the internet.

## **2 The Affordances of the Network**

Over a decade ago, telecommunication theorists Hollan and Stornetta argued that, rather than try to simulate face-to-face communication, the design goals of networks should exploit to advantage the affordances already implicit in networked communications. Some affordances of the network are: "its ability to support asynchronous communication, anonymous communication, and to automatically archive communication." [Hollan and Stornetta 1992: 121] Such affordances have been well realized in the form of email, Internet dating sites and discussion forums, which exploit asynchronous and anonymous communications, and are often preferable over face-to-face communication for a variety of interactions. Any aesthetics of Net music would, correspondingly, imply a set of musical practices that exploit these (and other) specific affordances of networks.

It is clear that much of the current practice of Net music has failed to utilize such affordances. For example, in a recent issue of the journal *Organised Sound* dedicated to the topic of networked music, Mara Helmuth writes about her experience performing in concerts and improvisations across the country over an Internet2 connection from her office in Cincinnati.

Musical exchanges over Internet2 have linked audiences and performers distributed between educational institutions in the United States, to create multi-locational performances. The higher bandwidth allows better audio and visual quality transmission, allowing the use of uncompressed audio. [Helmuth 2005: 201]

The ability to perform in real-time with musicians widely dispersed in space is obviously facilitated by the development of the computer network; however, one must distinguish between practices *facilitated* by networks, and the creating of new

practices that realize the *ideational* or *essential* dimensions of the network. Clearly, networks offer the possibility of altering performance practice, to where musicians from around the globe can improvise across the web. But, does practice like this truly exploit the affordances of the network? Simply put, does this represent an improvement over face-to-face interaction?

It appears that Helmuth's project misses on two fronts: by treating the network merely as a transmission medium, it misses a unique opportunity create artworks that investigate the implications of the network's affordances for shaping new artistic practices; by overlooking potential transformations of the digital stream being transmitted, it misses out on the manner in which digital ontology can radically transform the practices of making music over the network. Tele-improvisation, a kind of musical action at a distance, ultimately falls back into entrenched forms of performance. I would tend to agree with the judgment of Matt Wright, when he states: "Only when each computer is doing something interesting does a network of computers behave like a network of computers instead of unreliable microphone cables with built-in delay lines." [Wright 2005: 194] The network must be distinguished from any sort of digital microphone cable. Naturally, one must be a bit more explicit about what it means to be "doing something interesting."<sup>1</sup>

---

<sup>1</sup> Reflecting on their work with The HUB, a similar point is made by Chris Brown and John Bischoff: "The NYC debut of the Hub was a success, and provided a notoriety for the group that launched a 10 year career. But the beginning of the band was a commission for a musical stunt, which became both a blessing and a curse. The idea of having musicians play with each other from distant locations was then, and has been ever since, of considerable interest to promoters, publicists, and audience. Kyle Gann's review title "musica telephonica" emphasized the idea of the physical disconnect, the capability of creating music without being physically present, "phoning it in". But the band itself was always far more interested in the aspects of performer

### 3 Aesthetics of Net Music

According to Wright, once we have a set of computers behaving like a network, "the architectural questions are what each computer's role will be and how they will communicate." [Wright 2005: 194] It is the latter topic—the problem of getting the computers to communicate—that is the focus of Wright's essay on the Open Sound Control (OSC) protocol. The other topic—the role of the computer—is left quite open. Of course, this is part of the charm of OSC, in that it possesses no proprietary messages, so it can be easily adaptable in aiding communication between *any type* of networked interaction between computers.<sup>2</sup> Not being an aesthetician, one would not expect Wright to pursue the question of the computer's *role* in any extensive manner—that's just left up to the composers, improvisers and programmers to deal with.

However, it may be fruitful to speculate about the computer's *role* in such networked interactions, as a way of trying to establish (if only provisionally) some basic aesthetic problems

---

interactivity, algorithmic complexity, and the web of mutual influence that the network provided. The network was a way for computer musicians to create a new kind of musical ensemble that allowed them to interact in ways that were *unique to their medium*. We were interested in the sound of idiosyncratic, personal computer music instruments that could influence, and be influenced by each other. The Hub became a way to extend compositional ideas from the solo electronic performer to an ensemble, *creating a new form of chamber music*." [emphases added, Brown and Bischoff 2002]

<sup>2</sup> "Part of what makes OSC 'open' is that it comes with no standard set of messages every synthesizer must implement, no preconceptions of what parameters should be available or how they should be organised. Each implementer of OSC can and must decide which parameters to make accessible, what to name them, and how to organise them in a tree structure." [Wright 2005: 194]

of Net music. Of course, the *role* of the computer needs be thought about beyond merely its “architectural” function—the way that it gets incorporated into a network in specific instances—by treating it in its aesthetic function. Beyond the technical issues of how we can get our musical systems up-and-running on the network and making sounds, an aesthetics of Net music should make us pose questions: Why we are doing what we are doing? What are we trying to reveal (or show, or demonstrate) through our works? In what ways does sound (or music) contribute to this revelation (or showing, or demonstration)? Are the affordances of the network being fully considered?

Perhaps it is useful to recall that Baumgarten, when introducing the modern concept of the aesthetic in the 18<sup>th</sup> century, intended it to be a science of how things are known via the senses. This emphasis on knowledge *through the senses* would differentiate aesthetics from other philosophical disciplines, such as logic or ethics, where a dependence upon sensation could not reliably provide the requisite universality. In Kant’s development of the discipline, aesthetic judgments can claim universality (opposed to judgments of taste, judgments of beauty are not simply subjective—they make claims that others should/must confer with) yet, their tenuous status (their claiming) does not possess the *apodictic certainty* of, for example, logical demonstrations. Paraphrasing Danto, Kant’s aesthetic claims are twice removed from pure reason. [Danto 2003] In aesthetic theory, the senses, which suffered a beating at the hands of Cartesian doubt, return to stake their own claims about how we know the world via affective and perceptive channels. This leads towards two aspects of aesthetic investigation: *what* are the things known via the senses, and *how* are they known.

#### **4 How Things Are**

Net music, like other forms of new media, implies a radical shift in the ontology of the artwork. Namely, the medium specificity that differentiated music from, say, painting or poetry, is no longer a *necessary* condition, but simply a choice of interface and processing algorithm. Media theorist Friedrich Kittler places the decisive shift with the arrival of the optical fiber network:

People will be hooked into an information channel that can be used for any medium—for the first time in history, or for its end. Once movies and music, phone calls and texts reach households via optical fiber cables, the formerly distinct media of television, radio, telephone, and mail converge, standardized by transmission frequencies and bit format...The general digitization of channels and information erases the differences among individual media. Sound and image, voice and text are reduced to surface effects, known to consumers as interface.

[Kittler 1999: 1]

By the term "surface effect," Kittler is trying to show that the choice of a medium (sound, image, film, text) is no longer *essentially* tied to the digital ontology that underlies it. The deep structure is *indifferent* to its realization—that's why the various media become mere surface effects. This convergence (or reduction) of various forms of media to a standardized digital format is designated by the term "de-differentiation."

Kittler's diagnosis for aesthetics is bleak. Once media become indifferent to their mode of interface, the end of aesthetics is near. Speaking about computer graphics, Kittler writes: "Only the brute fact of available RAM space limits the richness and resolution of such [virtual] worlds, and only the unavoidable, if unilateral choice of the optic mode to govern such worlds limits their aesthetics." [Kittler 2001: 35] In other words, aesthetics

is no longer an issue of human knowledge by the senses, but really a question of computational power and modes of rendering. The world of digitality threatens to produce a continuous flow of autonomous data, indifferent to its interface with humans, and simply unconcerned with its conformity to "human perceptual ratios." [Hansen 2004: 2]

## **5 How Things Are Known**

Yet, there remains an odd paradox: although we can comprehend the nature of digital ontology, we cannot represent it unequivocally. Whether we conceive of digital ontology as a series of 0's and 1's, or as a series of switches, or marks and erasures on Turing's infinite tape, all three representations are *pragmatically* coextensive.<sup>3</sup> The fact that we cannot simply and equivocally represent digital ontology supports Kittler's claim that our interface with digitality is really a kind of surface effect.

However, despite a de-differentiated ontology of media, the fact is that we still remain subjects who possess a given modes of sensation and cognition. And, of course, the hallmark of aesthetics is the use of the senses as mode of knowledge. One of the central arguments made by neo-Bergsonian media theorist Mark Hansen, is that the body, which acts as a center-point for its various sensory modalities, selects and subtracts from the totality of "images" available. (In this context, "images" means something like the variety of data that has the possibility of coming into contact with the subject.) This act of subtraction

---

<sup>3</sup> It is important to remind oneself that the term *digital* does not mean something like "representation by numerals." As Goodman has shown, *digital* systems are defined those bearing certain properties, namely, differentiation and discreteness at both the semantic and syntactic levels. [Goodman 1976: 161]

and selection is a meaning-giving act, which "in-forms" our reception of information. Hansen argues, that in the face of digital de-differentiation, the body is revealed as the site where meaning is produced. "Simply put, as media lose their material specificity, the body takes on a more prominent function as a selective processor of information." [Hansen 2004: 22] In other words, the subject is asked to do more because the object is becoming less and less attuned to the subject's modalities. The important differences between media are no longer dependent upon the digital object, which has become de-differentiated. This is where the self appears, doing the work of differentiation that digitality has erased. "The digital calls on us to invest the body as that 'place' where the self-differing of media gets concretized." [Hansen 2004: 31] The upshot of Hansen's "new philosophy" is a refocusing of attention away from the materiality of objects, back onto the newly liberated subject.

Kittler's anti-humanist vision of a world filled with autonomous data streams, endlessly circulating without concern for human subjects, finds its doppelganger in Hansen's optimistic efflorescence of the body from under the yoke of modernism's strict materialist subjugations. Both positions are undialectical. What neither theorist deals with is the role of the mapping, or algorithm—that thing that connects the data flow to the interface. It is in the construction and consideration of such algorithms that a dialectical aesthetics of net music resides.

## **6 Strategies**

What we are looking for are algorithms, mappings and "architectural" constructions that do not simply allow the listener unproblematic relations to sounds. We want to create mappings that will force the listener into an awareness of the

*contingent* nature of the interface with which they are involved. If it is possible to set up a situation where the listener is made aware of such contingency, then the Net musician will have shown the listener how things (i.e., de-differentiated media) are known (i.e., as surface-effects) via the senses.

Moreover, because we are approaching this as an aesthetic problem, we are forced to make such a realization from within the realm of non-essential surface effects. This means that the representations we make must, like a hall of mirrors, endlessly reflect back upon their non-essentiality in order to exhibit their relationship with de-differentiated material.

There are a variety of ways in which one can imagine this happening: some may create surface effects that lack completeness, or appear self contradictory; some may create metaphors that transfer the ontology/surface relationship onto other appropriate structures; some may simply alienate or frustrate the receiver of such surface effects, forcing self-conscious recognition. In any case, the aesthetic problems of Net music do not appear as stylistic problems—one could imagine an infinite variety of musical instantiations of the same aesthetic problem. (This is one reason why I have suppressed the urge to rely upon specific examples.)

Here are some possible strategies:

- Multiple realizations, as a way of producing contradictory surface effects: this could imply a web-installation with daily updates, or the ability to be run again and again; in live performance situations it could mean performances of same piece played back to back.

- Continuous realizations, as a way of showing (or revealing) the indifferent flow of the data stream: this could imply various types of installations, either physical or web-based.
- Multiple starting points, as a way of demonstrating the non-essential relationship between the surface effect and its ontology: this could mean projects that harvest sound files, employ web crawlers and search robots, or track data gathered from computers on the network (perhaps with novel or radical re-mappings).
- Translation, to show the interchangeability of surface effects: web pages parsed as sound files, etc.
- Misapplication of specific kinds of data streams, as a way of revealing the structure of data: for example, taking multi-channel midi files and applying them to single channel systems, or showing the difference between a human and machine representations of musical information.

Or, more narrowly, strategies based on the suggestions of Hollan and Stornetta:

- Multiple points of control, as a way of making perspicuous the anonymity of the network: loss of difference between "my sound" and "yours", collective manipulation and transformation of sound.
- Constraints based on continually updated databases, based on the affordances of the network for archiving: decisions allowed or restricted based on an archive of previous decisions.
- Asynchronous music-making, as a leveraging of network affordances: installations or compositions parasitic upon sounds/material/data contributed or manipulated in collective databases.

## References

- Brown, Chris and Bischoff, John (2002). "INDIGENOUS TO THE NET: Early Network Music Bands in the San Francisco Bay Area", <http://crossfade.walkerart.org/brownbischoff/>.
- Danto, Arthur (2003). *The Abuse of Beauty*. Illinois: Open Court.
- Föllmer, Golo (2005). "Electronic, Aesthetic and social factors in Net Music", *Organised Sound* 10(3): 185–192.
- Goodman, Nelson (1976). *Languages of Art*. Indianapolis: Hackett.
- Hansen, Mark M. B. (2004). *New Philosophy for New Media*. Cambridge: MIT Press.
- Helmuth, Mara (2005). "Virtual musical performance and improvisation on Internet2", *Organised Sound* 10(3): 201–207.
- Hollan, Jim and Stornetta, Scott (1992). "Beyond Being There", *Proceedings of the 1992 ACM Conference on Human Factors in Computing Systems*: 119–25.
- Kittler, Friedrich (1999). *Gramophone, Film, Typewriter*. Tr. G. Winthrop-Young and M. Wutz. Stanford: Stanford University Press.
- Kittler, Friedrich (2001). "Computer Graphics: A Semi-Technical Introduction", *Grey Room* 2: 30–45.
- Wright, Matt (2005). "Open Sound Control: an enabling technology for musical networking", *Organised Sound* 10(3): 193–200.