

# CROSS-POLLINATION: TOWARDS AN AESTHETICS OF THE REAL

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## ABSTRACT

This paper explores notions of complexity and ecology through a shared environment of interaction through a presentation of the sound installation *Cross-Pollination*. It discusses music based on algorithmic processes and the growing trend of an ecological thinking in composition. It draws similarities between this and a conception of aesthetics based on a negotiation of meaning between a viewer and the object of art, drawing attention to the aesthetics of the real and its relationship to complexity.

## 1. INTRODUCTION

There is an established history of the employment of algorithms for the generation of art and music. Examples specifically from the genre of music being found as far back as the alleged dice pieces of Mozart through to Schoenberg's twelve tone system, and Xenakis' employment of stochastic process. [15] More recently there has been a growing number of people employing methods, algorithms and process from models of complex self-organising systems and utilising them for the creation of music. [1] [3] Hand in hand with this there has been a growing frustration in some fields of research with what could be termed closed systems, blind to their context, shut off from reality. [7] My personal field of creative practice could be described as sound installation, in that my intention is to create sonic environments for the exploration of users. I attempt to reconnect algorithms to embodied perceivers situated in space and place, borrowing a phrase from Douglas Irving Repetto, I attempt to create 'real-world manifestations of computer based simulations.' [14]

## 2. ECOLOGICAL FRAMEWORK

Working in the realm of installation is for me akin to creating in the complexity of the real. Installation artists by the very nature of their work are working in the full complexity of reality and thus have to consider not only the direct experience of sound but also its relation to space and its personal relationship to the individual; architectural and cultural. There is obviously an overlap here with the concerns of composers, be it an exploration of acoustic phenomena found in Alvin

Lucier's work or in Agostino Di Scipio's compositional environments. Bodies, space and place are important for the creation of music. Waters [16] recalls that he was taught as a child to think of his flute as starting in his diaphragm and extending into the room. Music is also inherently a social beast, based around interactions not only of sounds in their environments but between people creating sounds, people listening to sounds within their own cultural social context. Waters also reminds us that there has been 'a long history of site-specificity in music's conception and development, notably in Giovanni Gabrieli's Sonata pian' e fort and the entire Venetian polychoral tradition. Indeed in pre 19C music some degree of site-specificity may be said to be the rule rather than the exception' [16]. With a corresponding growth in what could be termed ecological composition [11] or performance ecosystems [16] from composers and theorists such as John Bowers, Phil Archer, Luke Windsor, and Bill Fontana, we can identify a growing number of practitioners creating sonic environments within an ecological framework. I have argued in previous papers [5] [6] that in applications of music creation that utilise models based on abstract algorithms there is a need for a tighter linking of the algorithms with environmental and cultural context. Not only to make these algorithms more open ended in nature, not closed off from the complexity of reality, but to make them more accessible to the perception of participants in the work in such a way that there can be a co-evolution of interaction and understanding.

### 2.1. Situational aesthetics

Working in the field of installation also highlights a level of personal engagement with the work. In the paradigm of ecological composition we can turn to Gibson's notion of affordances [9] [10] to better understand how sound might inform and relate to us information about our environmental context. Within this context sounds become increasingly subjective, in that they are individually specific, taking on meaning relative to a person's specific relation to an environment, their social or cultural context. Meaning in this conception seems no longer to rest in the object of art itself but in its relationship between it, the viewer and its environmental context. The aesthetics of the

situation as noted by LaBelle [12], can be said to be site-specific such that the art's meaning is always contingent on its surroundings, temporal in nature and culturally specific. The creation of meaning between perceiver and environment thus becomes increasingly subjective, moving towards an understanding of aesthetics as outlined by Bourriaud's notion of Relational Aesthetics [4], which Bourriaud describes as 'judging artworks on the basis of the inter-human relations they represent, produce or prompt.' [4]

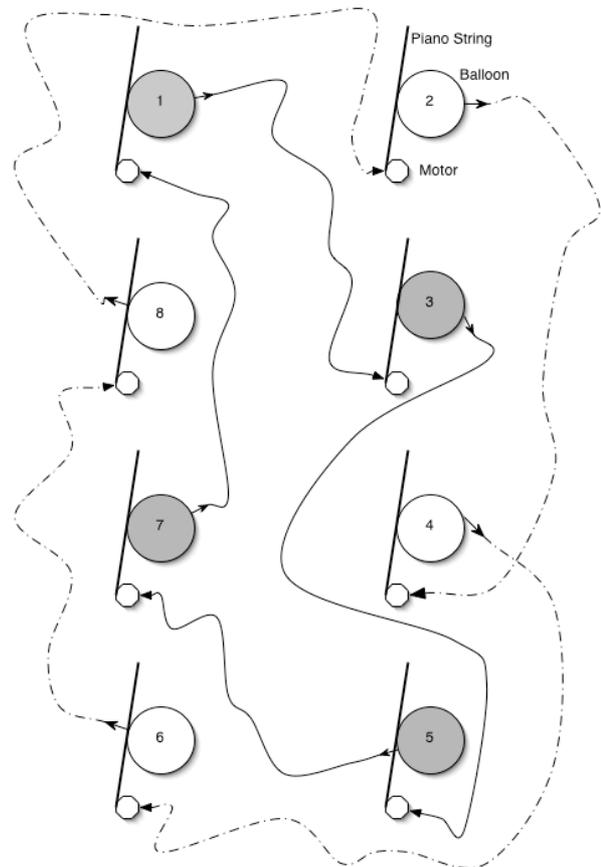
### 3. CROSS-POLLINATION



**Figure 1.** Cross-Pollination as exhibited at FIX'07 biennial performance art festival, Catalyst Arts, Belfast.

The installation Cross-Pollination is an attempt by the author to explore the notions of ecology and situatedness within a real world interactive environment. The installation is made up of twenty 'agents' each consisting of a three foot balloon; four meters of piano wire, a piezo transducer; a three Volt motor and a motor controller. Each balloon is connected to a piano wire and on each balloon there is a piezo transducer. The piezo transducers are each connected to a motor driver in such a way that if there is any sound at their balloon they will cause another motor to start spinning. These motors are set up to pluck a different piano wire, thus activating another balloon and hence another motor. The piezo transducers and motors are wired in two discrete feedback loops as shown [fig2], with the intention that a sound at one balloon will start off a chain of feedback ultimately reaching back to the originating balloon. Although the two feedback loops look discrete, balloons 1,3,5,7, and 2,4,6,8 on the diagram, since the balloons have a double function of microphone and resonator, and due to their proximity in a shared environment, it is possible for the soundings of one balloon to activate an adjacent balloon in a different feedback loop. In this way it is possible for unforeseen complex interactions to emerge leading the installation to take on an indeterminate nature of sonic output. This cross-pollination of sound activation is further disrupted and complicated since it is possible for the balloons to be activated by any sound in the space. Hence users walking amongst the space or interacting with the balloons, as they are encouraged to do, can disrupt

and/or augment the complex patterns they are hearing in an attempt to draw some meaning from the interactions taking place.



**Figure 2.** Schematic of Installation set-up.

#### 3.1. Complexity of the Real

The soundings of this piece are determined by its physicality in the real space. The tension of the piano wire, the size and position of the balloons, the sonic interactions and irregularities in the circuitry all combine to produce the observed complex behaviour. A similar piece generated on a computer would have none of these things present in its algorithm, and even if they were specifically coded in it would be impossible to represent fully the complexity of interactions found in the real environment. Working in this way the sound making objects and the audience are embodied within the same space and the audience becomes a participant in, or a composer of, their piece constructed from their bodily interaction with the work, their movement around the space and their personal engagement with the piece. I draw a parallel here to a sense of spectator participation that is found in Fluxist and Happenings, a feature that has since become common in a wide range of artistic practices. [4] This idea of participation of the spectator, what Fried [8] termed the 'theatricality' of art, is a distinction between art that he classed as durational rather than transcendently instantaneous. This temporality is perhaps important in assessing the

aesthetics of such of piece, one in which the specificity of the participants perception of the work is conducted in a temporal manner, as a process of exploration, of negotiation.

Bishop [2] introduces us to a number of artists who see the meaning of their work arising from an interaction between the work and the viewer itself. Bishop describes such work as ‘incomplete without our direct participation.’ She cites in particular *Litchwand*, (2000), a work by Carsten Höller which is literally a wall of lights that constantly turn on and off. Bishop points out this installation is designed to have a physiological effect on the viewer it is meant to dislocate and disorient but for this it *requires* the viewer to be present and perceiving. This relationship between the viewer and art is based on Höller’s understanding of perception as ‘something mutable and slippery’. Höller, doesn’t see perception as a function of a detached Cartesian mind but something that is ‘integral to the entire body and nervous system, a function that can be wrong-footed at a moments notice.’ [2]



**Figure 3.** Cross-Pollination set up in SARC’s Sonic Lab.

In the same way the installation *Cross-Pollination* requires a viewer to be present to appreciate the complexity of the piece. Meaning is negotiated between viewer and subject as patterns and rhythms emerge through a users aural perception of the sonic environment. Although users’ interactions always have an immediate effect on the motor most closely linked to the balloon they are near, their overall effect on the complexity of the installation of a whole is more ambiguous. Borrowing some terminology from Chaos theory the installation behaves more like a complex system oscillating around an attractor, interaction may nudge it away from this behaviour towards another attractor or into a complete state of randomness. Participants are invited to get lost in the complexity of the interactions as Morris states it ‘art itself is an activity of change, of disorientation, and shift, of violent discontinuity and mutability, of the willingness for confusion even in the service of discovering new perceptual modes.’ [13]

In *Cross-Pollination* there is an explicit sharing of physical space, a sharing of interaction, between agents and between interactants in a shared context. Interactions within and with this installation could however, also be conceptualised on a social level, either as human to human interactions or as human to agent interaction. This social interaction is highlighted by the dislocation of acoustic energy, interactions at one point in the space have repercussions elsewhere, effecting other users experience of the piece. The agents are connected in an ecology with each other and the space, they communicate with each other through sound and through electricity, actants in the space do the same thing, especially in the moment of performance. The human participants become part of the installation, acting almost as other agents in the piece, entering into the ‘natural’ environment, into the shared ecology, acting as catalysts for change and intervention. There is a sharing of acoustic energy, a sociality of music making. Through a communication of musical ideas in performance, music is created in the social interactions within the installation environment, be they between humans and humans or humans and machines. This sociality is fostered by interacting in the real, through the shared environment, through the physicality of the agents and their embodied presence in a shared context.



**Figure 4.** Cross-Pollination set up in SARC’s Sonic Lab.

### 3.2. Real world manifestations

Repetto notes that his work *crash and bloom*, an installation that ‘undergoes population density cycles similar to those founding living systems’ [14] might have been more successful if it had been modelled on a computer. He would have been able to tweak the parameters more easily and would have been able to explore a greater topological space. Repetto though asks the question, would it have made better art? And I agree

with him that the answer would have to be no. I too feel the same way about this work. It too would have been much easier to model on computer and in some ways I could have had much greater complexity, I could have had much more than twenty balloons for example. However, some complexity would have been almost impossible to programme, for example, the non-linearity of the piano strings and the weird non-linear behaviour of overloaded PC power supplies. Most of all, participants would not have had a full embodied, ecological interaction with the piece in the same way, this shared notion of engagement and understanding which allows participants to construct meaning through shared interaction.

#### 4. CONCLUSIONS

I've argued that in presenting 'real world manifestations of computer based simulations' you get a lot of things for free. Not least a level of complexity of interaction and meaning that would be 'impossible' to programme explicitly. This way of working opens up sound installation to the discussion of a negotiation of meaning in which meaning can be said to be site-specific such that it is always contingent on its surroundings, temporal in nature and culturally specific. The engagement of interactions in the installation is furthered by the embodied nature of the agents, through the shared medium of communication and a shared context of interaction, such that interactants become engaged in the creation of the work, part of the creative algorithm. Such notions are furthered through the consideration of a presentation of algorithms that function as embodied in the richness of real environmental contexts and thus draws us towards an aesthetics of the real.

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