

Auto, Crack, Slimework and the Seven Leg Spider

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Introduction

Our work explores the crossover between electronic dance music, noise, improvisation and visual arts. We use unpredictable systems as a starting point for improvisation. These systems include, for example, the Cymatic Controller (a DIY mechanical wave driver that vibrates conductive material across a ‘prepared’ Chladni plate);¹ the Automaticiser (a copper plate etching that doubles as a touch controller); and the PD patch, Seven Leg Spider (a performance tool that acts as a nexus between digital and analogue domains).² The design of these systems exploits the use of the subconscious, and complex unpredictable occurrences found in natural phenomena. We are also interested in the symbiotic relationship between sound, image, found art and sculpture, and the potential of hybrid systems. In performance we use large screen projections to show the synaesthetic connection between the systems, objects and sound. *Auto, Crack*, and *Slimework* are the title of three works that were created using the systems described in this paper, and these works formed the starting point for our ongoing collaboration.³

Cymatic controller

Since Hans Jenny’s thorough research into the study of wave phenomena, many artists have found inspiration from cymatics.⁴ For example, the use of cymatics can be found in Alvin Lucier’s *Queen of the South*, and in the more recent work *Milch* by Carsten Nicolai. The Cymatic Controller goes a step further in that, as well as providing a visual representation of sound, sound waves are also used to move conductive non-Newtonian fluids across a circuit to control other electronic sound generating devices. The controller is driven by sounds from the PD patch the Seven Leg Spider. The idea behind using such a controller was to explore the intersection between visual and aural representation of sound, the sculptural properties of the ‘object’, and to create new interactive environments through the

synthesis of old and new technologies. The Cymatic Controller is designed around a do-it-yourself aesthetic and is made from found and appropriated objects. These included an old loudspeaker and a small cooking mould that connects the drive arm of the controller to the coil (Figure 1).

The plate is prepared by hand-painting a circuit in silver-loaded electrically conductive paint on transparent acetate sheet. The sheet sits on a Chladni plate. The design of the circuit is based on hairline fractures found in cement (Figure 1). The pattern from these fractures is interpreted as a ‘circuit’ with breaks inserted. Six independent ‘tracks’ are realised from the labyrinth of cracks. Each track terminates at the centre of the Chladni plate, where a flange with terminal pins connects the circuit to a DIY resistance matrix. The tracks can be patched in pairs and configured to create three independent resistance values when conductive material ‘connects’ the tracks. These values may also be combined to create resistances in parallel or series.



Figure 1: Cymatic Controller showing the prepared Chladni plate and circuit based on the hairline fractures found in cement. Copyright © John Richards and Tim Wright.

Slimework

Slime as a conductive substance seemed particularly evocative and visceral, yet at the same time futuristic and the embodiment of the sci-fi. These ideas are

manifested in the 1968 science fiction film 'The Green Slime'. The film's trailer begins with the narration:

The lonely helpless Earth. The twenty-first century. The world of the future. And lurking beyond the cold strange immensity of conquered space, growing and spreading beyond the warped imagination of the greatest human intellect, exploding in unthinkable horror, the green slime.⁵

There are a number of other sound artists interested in the potential of slime-like material as a variable resistor in conjunction with electronic circuits. Lorin Edwin Parker has explored using conductive jelly as a means to interact with electronic circuits;⁶ whilst Eric Singer has developed the slime-o-tron to work with the LEMUR system. The conductive slime for the use with the Cymatic Controller was made from coloured gelatine and salt. Other non-Newtonian liquids, such as a composite of PVA glue and borax, have also been used. Non-Newtonian liquids have particularly unusual behaviour when subject to vibration. Different viscosity of the mixtures was also explored to alter how the slime responded to the signals sent from the Seven Leg Spider patch. Other themes associated with the slime and the Cymatic Controller include that of Prometheus. It is as if the vibrations from the controller bring life to the inanimate slime. Although the slime is not touched in performance, it has a tactile quality: something that is 'dared' to be touched, wet, gooey, viscous, and malleable.

Seven Leg Spider

The Seven Leg Spider is a patch written in Miller Puckette's Pure Data (PD) programming language. It has three principle roles in the creation of the pieces presented here. Firstly it acts as a 'stimulator' for the slime — pulses and tones of varying frequency and duration are sent to the Cymatic Controller to force the slime into motion. Secondly it acts as a 'conduit' - continuously capturing the audio signals generated by the behaviour of the circuits for use both as controller

information and as a direct sound source. Thirdly it acts as an instrument in its own right — providing a rhythmic and atmospheric context for each piece, with selected parameters modifiable by the output from the Automaticiser and Cymatic Controller.

In performance the patch can be left to its own devices, stimulating and processing the Automaticiser and Cymatic Controller with pre-prepared algorithms. In practice more rewarding results are obtained when improvising with a combination of hands-on control of the patch and automatic processing. In this way the spontaneous magic of events generated via chance and the unconscious are harnessed to actively steer, inspire and disrupt.

Conclusion

We are interested in looking beyond 'black box' technology. This involves 'unpacking' the boxes and demystifying technology and making it tangible. Central to our work are the physical and biological properties of things — things that grow, decay or die — and how these 'conditions' live side-by-side with digital technology.

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- 1 The Chladni plate, named after Ernst Chladni, is a vibrating metal plate with lightweight particles, such as sand or salt, on its surface to show the lines of nodes.
 - 2 Automaticiser and the Cymatic Controller were developed by Richards; the Seven Leg Spider PD patch was developed by Wright. The Automaticiser is discussed in detail in: Richards, John. 2008. "Getting the Hands Dirty." Pending publication in *Leonardo Music Journal* 18 (1).
 - 3 Tim Wright and John Richards are currently working together under the name Seven Leg Spider (sls) <<http://www.timwrightmusic.com/sls>>
 - 4 Jenny, Hans. 1967. *Kymatik. Wellen und Schwingungen mit ihrer Struktur und Dynamik. Cymatics. The structure and dynamics of waves and vibrations*. Basel: Basilius Presse. [Auslieferung: Karger Libri, Basel].
 - 5 Fukasaku, Kinji. 1968. The Green Slime (trailer).
 - 6 Parker, Lorin Edwin. Workshop entitled "New Instrument Interfaces." Presented at Velaslavasay Panorama, Bent Festival, Los Angeles, 14 April. 2007
 - 7 LEMUR < <http://www.lemurbots.org>>