



# Ways of Making People Move

composing, mapping and interpreting using live  
generation of augmented musical scores

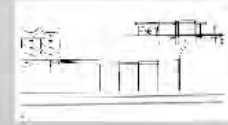
Composition in the 21st Century  
Trinity College, Dublin  
March 2014

Richard Hoadley  
Digital Performance Laboratory  
Anglia Ruskin University

“

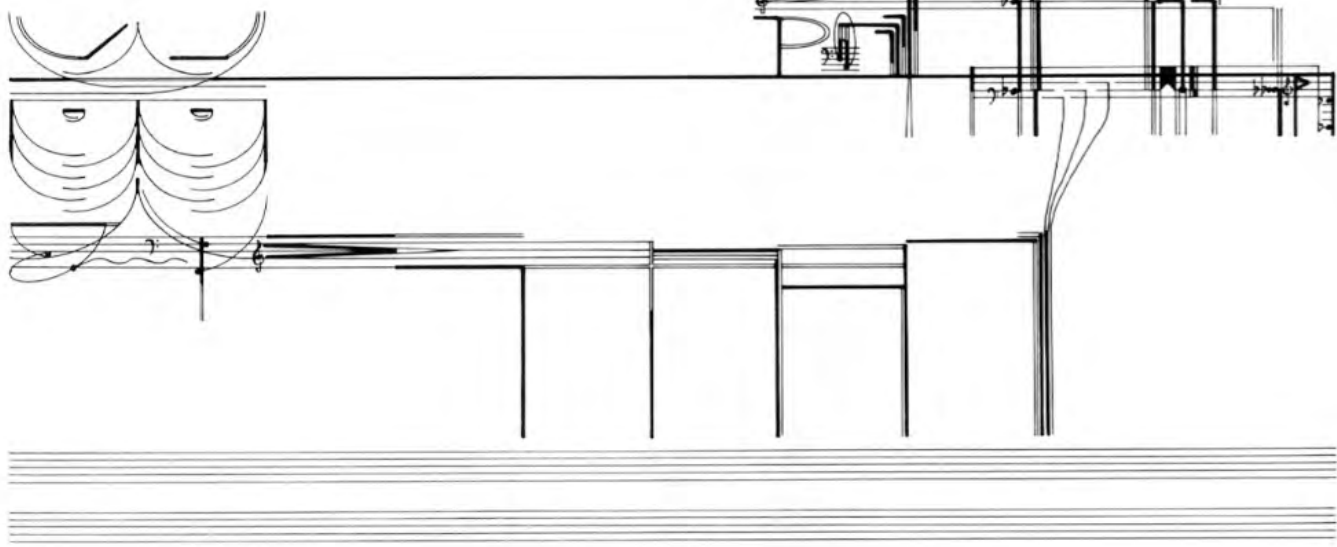
8th Feb 63

Notation is a way of making people move. If you lack others, like aggression or persuasion. The notation **should** do it. This is the most rewarding aspect of work on a notation. Trouble is: Just as you find your sounds are too alien, intended 'for a different culture', you make the same discovery about your beautiful notation: no-one is willing to understand it. No-one moves.



”

**Cornelius Cardew,  
from Treatise Handbook, 1971**



# Three Streams

algorithms (patterns)  
physicality (via microprocessors, etc.)  
representation (notation)

(representing musical composition and performance)

Related work: algorithms  
and notation in the history of  
music  
John C. Seaman, *Algorithms  
and Notation in the History of  
Music*, Cambridge, MA, 2010  
John C. Seaman, *Algorithms  
and Notation in the History of  
Music*, Cambridge, MA, 2010  
John C. Seaman, *Algorithms  
and Notation in the History of  
Music*, Cambridge, MA, 2010

## Notation/representation



# Richard Hoadley

Four Archetypes, 1995

Handwritten musical score for "Four Archetypes" by Richard Hoadley, 1995. The score is in 4/4 time with a tempo of quarter note = 110. It features three systems of staves, each with three parts (1, 2, 3). The notation includes various dynamics such as *mf*, *p*, and *f*, and markings for "sotto" and "sopra" registers. The score is written in treble clef with a key signature of one sharp (F#).

System 1 (top):  
Part 1: *mf* (quarter notes, eighth notes)  
Part 2: *p* (quarter notes, eighth notes)  
Part 3: *p sotto* (quarter notes, eighth notes)  
Dynamics: *p sotto*, *mf sopra*

System 2 (middle):  
Parts 1, 2, and 3 are mostly rests.

System 3 (bottom):  
Part 1: *mf sopra* (quarter notes, eighth notes)  
Part 2: *p sotto* (quarter notes, eighth notes)  
Part 3: *p sotto* (quarter notes, eighth notes)  
Dynamics: *p sotto*, *f sopra*, *p sotto*

# Notation

- complex semantic and graphic 'language'
- not really suited to non-specialised environments
- many challenges in electronic implementation and display



# Why?

- to unify dots and signals: enriching electronic music with live performance and algorithmic patterning [ quote ]
- to investigate links between 'technologies' and approaches: mapping between domains: algorithm and physical gesture into live notation: understanding which gestures have 'meaning' and which don't
- utilising all that muscle memory; investigating liveness in music performance and improvisation
- to learn about and analyse compositional processes through automation
- ...as a consequence and to clarify, it's a technique **and** a tool, just as these compositions are both pieces and experiments

## Dots and signals

'Music processing', in the way that this community uses it, denotes the processing of music information, which is stored in its structured symbolic musical 'database'. The term 'music processing' implies a difference from the signal processing community, in that it does not deal with sound as the source material for investigation, but deals with music as score or music as timebased structure stored in a symbolic form, such as codes, languages, etc. Obviously the boundary between signal and 'music processing' can become very blurred, but it is useful to mention this division as it seems that the research, its communities and their methodologies tend to be different and do not overlap in a major way.

Carola Boehn, Book Review, Organised Sound 7(1): 79-82, 2002

## The tools...

provide a structure for the generation of music and/or common practice notation (plus) according to stylistic rules

facilitate communication between SuperCollider and INScore (Dominique Fober, Grame)

<http://supercollider.sourceforge.net/>

<http://inscore.sourceforge.net/>

<http://rhoadley.net/inscore> (from April 2014)

eventually, maybe, offer the beginnings of a more standard interface for physical mapping



# Performances

Gaggle v2



Gaggle @ HCI conference, Cambridge 2009



Quantum? Canticulum, Sensations Festival, Engry Shop, Meadows Shopping Centre, Chelmsford, Saturday September 28th 2013



The Fluxus Tree, LIPAM, Leeds, September 2012



Public interactions with the Fluxus Tree at the Cambridge Festival of Ideas, October 2012



Quantum? Canticulum, Deptford Town Hall, London, Friday 18th October 2013



Gaggle @ Museums, interfaces, spaces, technologies, 2010



Triggered, Kings Place, London, 2011

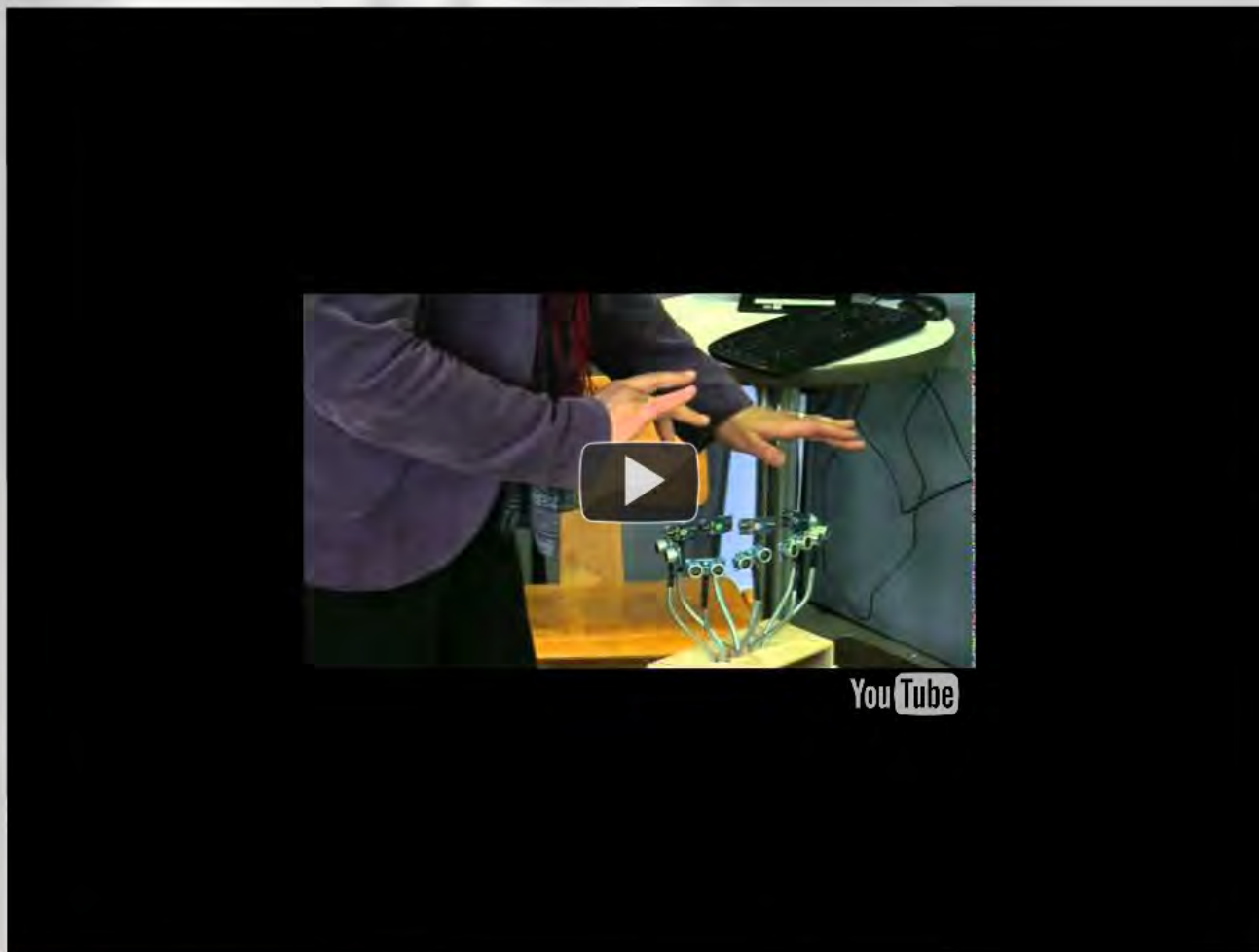


The Fluxus Tree, Intime Symposium, Coventry University, 2012



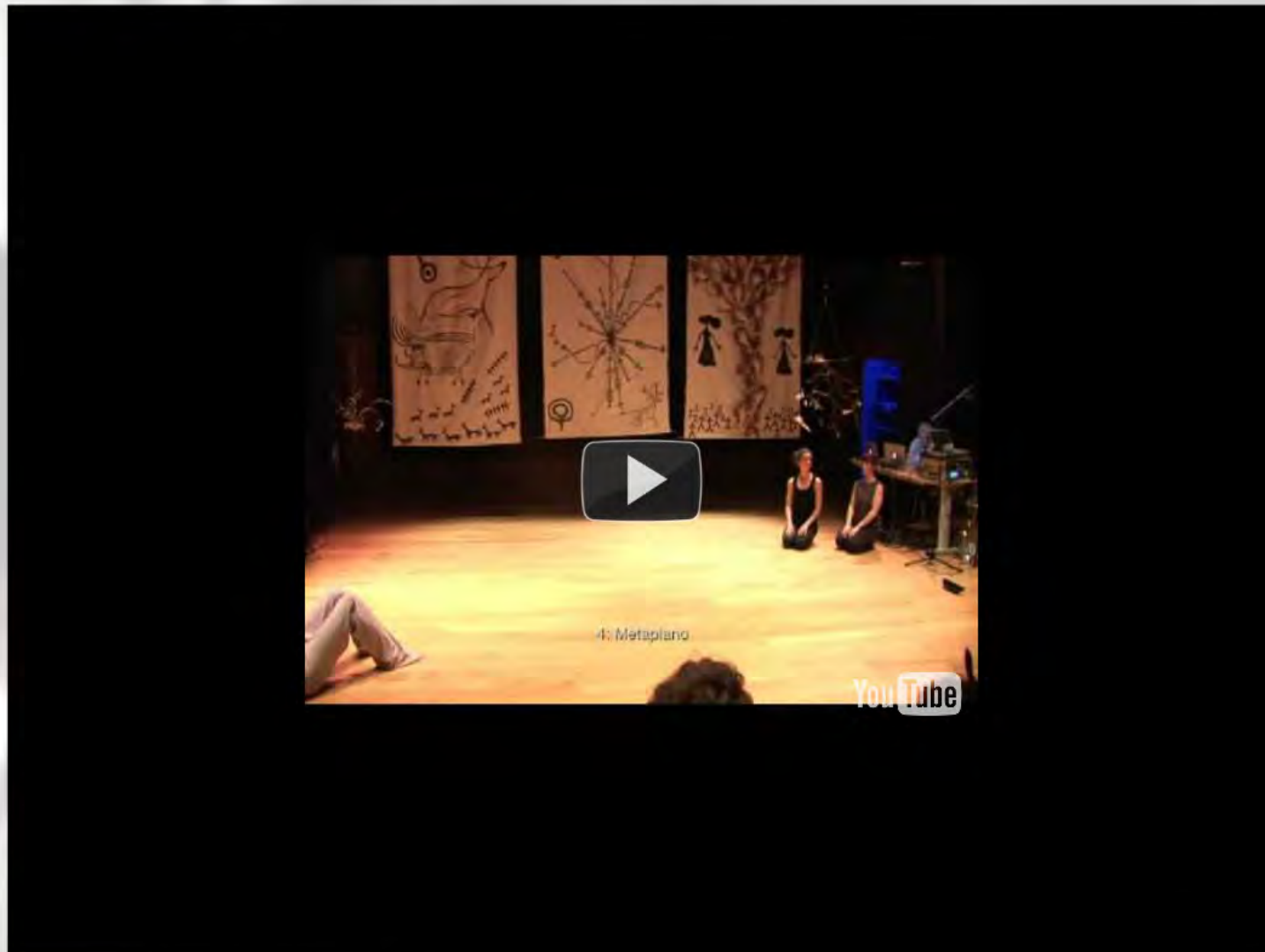
[ to display, or not to display, the notation? ]

Gaggle @ Museums, interfaces, spaces, technologies, 2010



[www.youtube.com/watch?v=FroFT1vHU0](http://www.youtube.com/watch?v=FroFT1vHU0)

Triggered, Kings Place, London, 2011



[www.youtube.com/watch?v=W3vnuA3torc](http://www.youtube.com/watch?v=W3vnuA3torc)

## The Fluxus Tree, LIPAM, Leeds, September 2012



YouTube

[www.youtube.com/watch?v=wH0mjb-jf8Q](http://www.youtube.com/watch?v=wH0mjb-jf8Q)

Quantum<sup>2</sup> Canticorum, Sensations Festival, Empty Shop, Meadows Shopping Centre, Chelmsford, Saturday September 28th 2013



[www.youtube.com/watch?v=-mq6ejdP0hg](http://www.youtube.com/watch?v=-mq6ejdP0hg)

Quantum<sup>2</sup> Canticorum, Deptford Town Hall, London,  
Friday 18th October 2013





# Peer comment and criticism

- machine musicianship as a compelling reason for using real-time notation
- concern over possible difficulties in keeping track of one's place in the score
- concern over the feasibility of an 'accurate' and structured rendition
- concern over lack of rehearsal, familiarity and even the status of the performer
- concern over the 'fetishisation' of the notation (when displayed)
- concern over the dancer being 'caged' by the 'cone of the Kinect'

> musicians involved generally do not agree with many of these comments

# **Forthcoming Performances**

Live Algorithms Symposium

Goldsmiths, University of London, April 2nd  
2014

Quantum2 Canticorum, 1300, Mumford  
Theatre, Cambridge, April 4th 2014

# Demonstration



# Thank you

any questions?

contact:

richard.hoadley@anglia.ac.uk

or

research@rheadley.net

this presentation is available at

<http://rheadley.net/presentations>