Notating, Performing and Interpreting Musical Movement

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This presentation is available here: **http://rhoadley.net/presentations/icmc2016.pdf**

v0.06

Live notation and composition

This workshop will reveal and practice a number of creative techniques based around live notations, movementbased data acquisition and will include consideration of the human computer interface, comparing (live) coding with more graphical components. Indicatively, live notations will include common practice music notation, text and poetry, raster and vectorbased graphics and include an assessment of a variety of new and existing dance notations. In particular the workshop will investigate the idea of 'intersemiotic translation' between expressive domains such as music, poetry, dance and visual art and examine the way that such translations guide and inform our creativity through such instantiations as metaphor and analogy. It will also examine the metaphorical nature (or otherwise) of movements made by instrumental musicians and how they compare to the 'pure' movements of dancers.

Keywords: Physical computing, algorithms, live notation
Conference categories: Algorithmic Composition, Composition and Improvisation, Interaction and Improvisation.

Live notation and composition

This research develops processes which allow for expression across creative domains (music, text, dance, graphics) by composer and performer. In particular it investigates links between physical expression and notation, and relationships between expressive domains, for instance movement in dance, movement in music and musical and textual expression.

Demo

Assuming everything works, I'll be basing my comments on a variety of demonstrations which will stand in lieu of performances - although I have some videos of these too.

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Semaphore (2014-15)

Semaphore is one of the latest pieces to involve three creative domains: text, music and dance. It was created with Phil Terry, a writer and poet and the choreographer Jane Turner and her dancers, with whom I have collaborated since 2009.

The piece has been performed seven times now and it's important for me to remember that it was 'written' as an experiment in collaborative technologies and notations, in addition to the use of live notation for two musical instruments (following on from earlier pieces). In general, the idea is to use movement data to create an appropriate musical atmosphere to accompany physical movement rather than to specifically 'mickey mouse' them.

In particular see little girl in centre frame at 5:45

Semaphore, Cambridge 2014, opening scene

http://rhoadley.net/presentations/icmc2016.pdf

Choreograms, Cambridge 2016

https://www.youtube.com/watch?v=pKziPTFGpIs

http://rhoadley.net/presentations/icmc2016.pdf

Edge Violations, TENOR Conference, Cambridge 2016

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Features

In particular, note the complexity of the decisions that have to be made and the similarities to 'normal' compositional choices. Questions and points that arise include:

- there are no cursors here, the music is free enough for the performers to coordinate 'graphically'. One of the key developments is to experiment with more rhythmic music, coordinated across a number of instruments.

- note the relevance of **position calibration** - distance, height and width of performer in space.

- note that the easiest way to **stop** the musicians playing is to make the score invisible!

- how precisely should performers attempt to follow the score? As the algorithms are not precise there is no such thing as a right or a wrong note, but then, if the audience is the see the score they may find divergences between it and any more improvised performances confusing.

- should the 'score' be displayed to the audience?

- how should the score be communicated to the audience and/or the musicians?

- the first part of Semaphore is deliberately designed to create 'nebulous', atmospheric music with imprecise results. Gestures and results are very flexible and there is no attempt at 'mickey mousing'.

- however, one part of the piece is specifically composed to make use of more direct gestural following – see next slide:

http://rhoadley.net/presentations/icmc2016.pdf
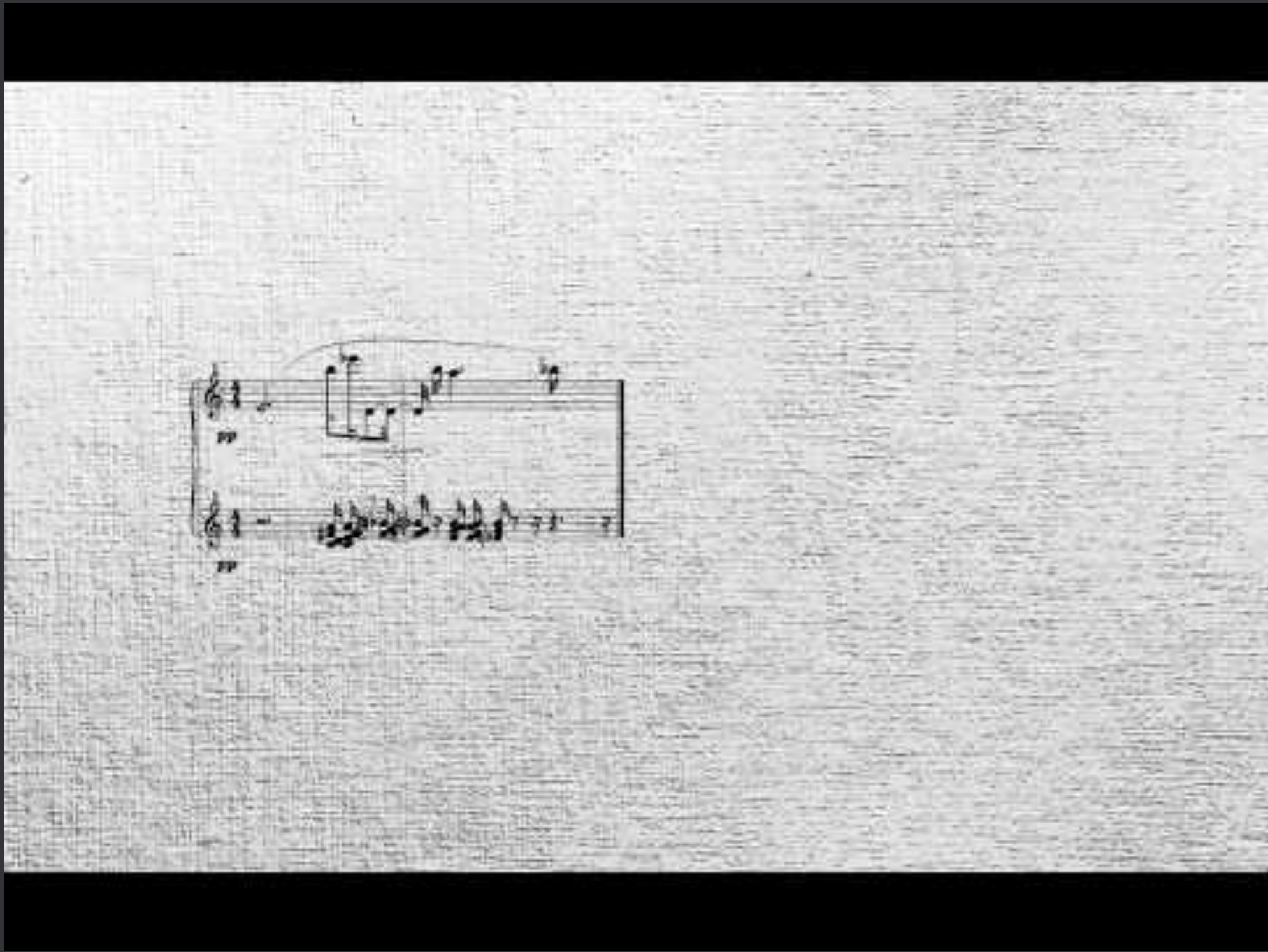
Actual demo

- in spite of extensive rehearsal, the details of the relationship between a dancer's movements and the musical specifics are very vague.

- it depends on particular dancers and choreographers, but it seems that you should not expect the precision of movement in either time or space that one does tend to expect from a musician (as least from relevant parts of the body and in a 'classically focused' context).

- this, in combination with the system's general imprecision, means that **synchronised precision** is not feasible using these components at present, although it's perfectly feasible using algorithms that are not reliant on such precise physical movement and acquisition (i.e. it is more pre-composed and less live).

- in other words, there's much more to performance than where your joints are placed in space!

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How To Play the Piano

Semaphore developed the use of live notation, and the next piece developed it further. *How To Play the Piano* is part of a larger as yet unfinished piece called *Piano Glyphs* investigating various types of live notations. The piece is very much a collaboration with Philip Mead, for instance:

http://rhoadley.net/presentations/icmc2016.pdf
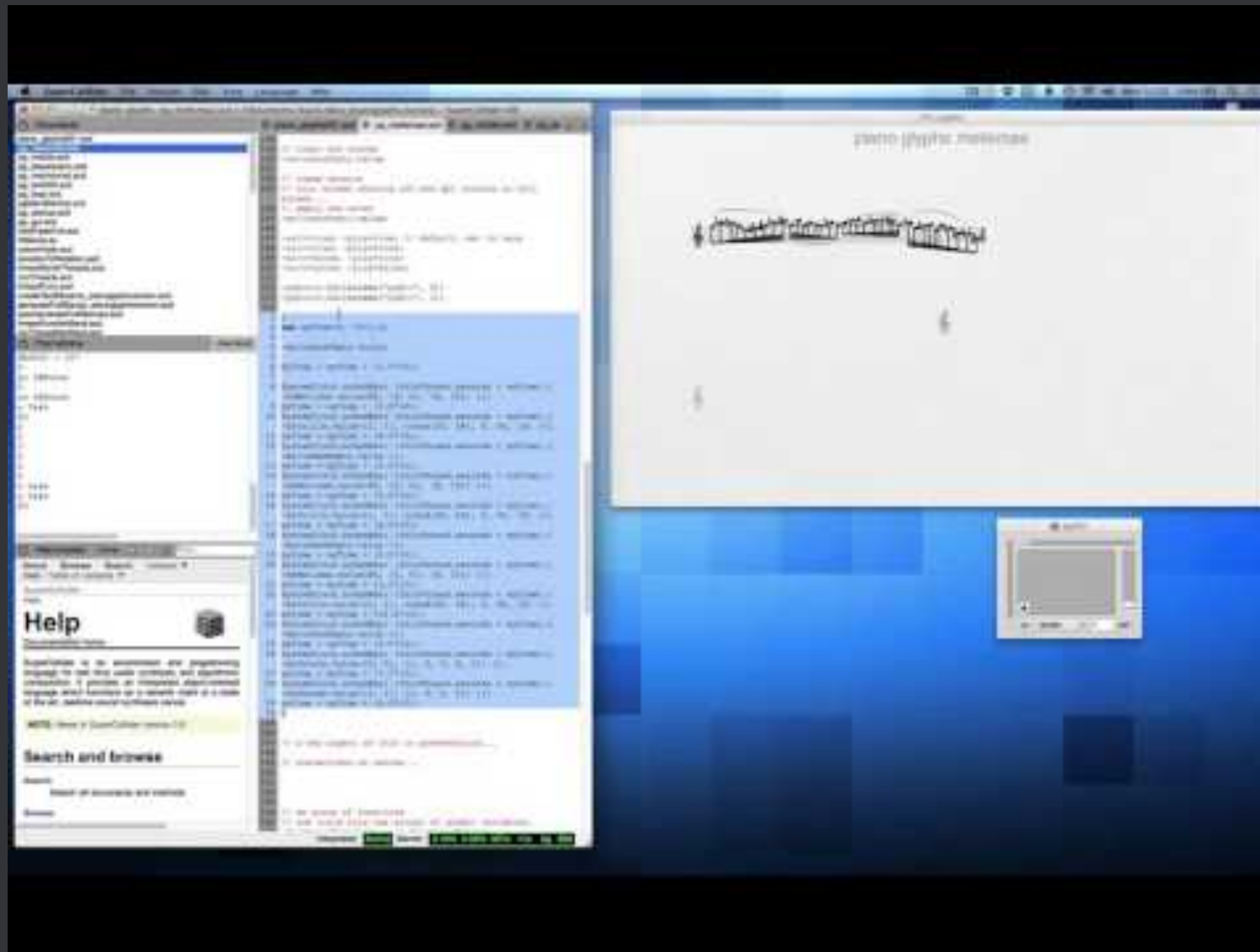
In this case, like *Semaphore, How To Play the Piano* revolves around a poem, in this case another new, original poem written and read by the composer and writer Katharine Norman. In the first part of the piece, words and phrases from the poem accompanied by algorithmic fragments of music notation flood the screen, allowing the performer a choice of whether to follow the music directly, to improvise or to do something in between, before the poem takes over. Here, the voice's amplitude and frequency generate the music notation and the accompanying musical sounds. Here heard in an early 'rehearsal' video:

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In this way the piece becomes very much a portrait of the performer (some performers would rather this were *not* the case, however).
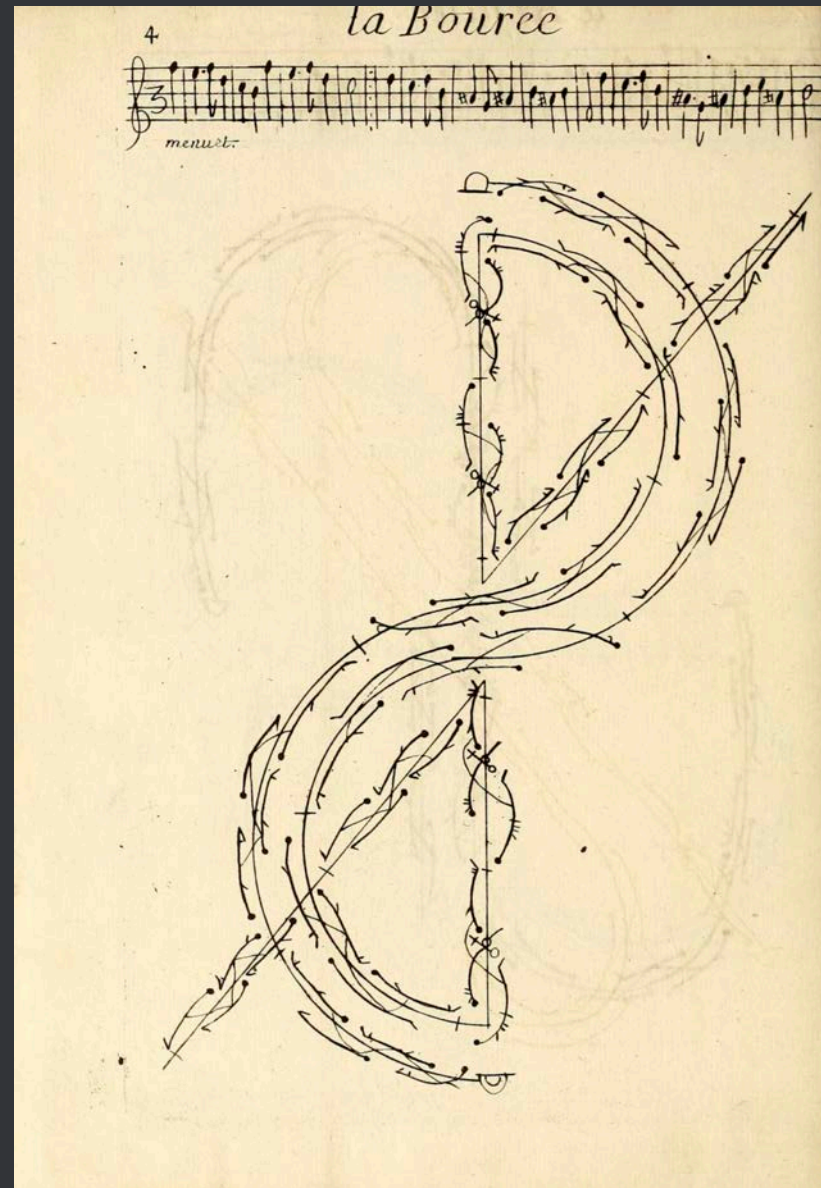
Dance Notation

- after music notation, text, live generated audio and physical performance: some form of dance notation.

- quite a lot of types of dance/movement notations: Labanotation, Benesh, etc.

- some of these (Labanotation) have some work on software implementation

- many of them, though, focus on the *recording* of dance and movement rather than for live interpretation.

- dancers are not in general so used to reading notation as actors and musicians.

- there are issues with how a dancer might read live notation (reading displays would significantly restrict movement, for instance).

Labanotation

http://rhoadley.net/presentations/icmc2016.pdf
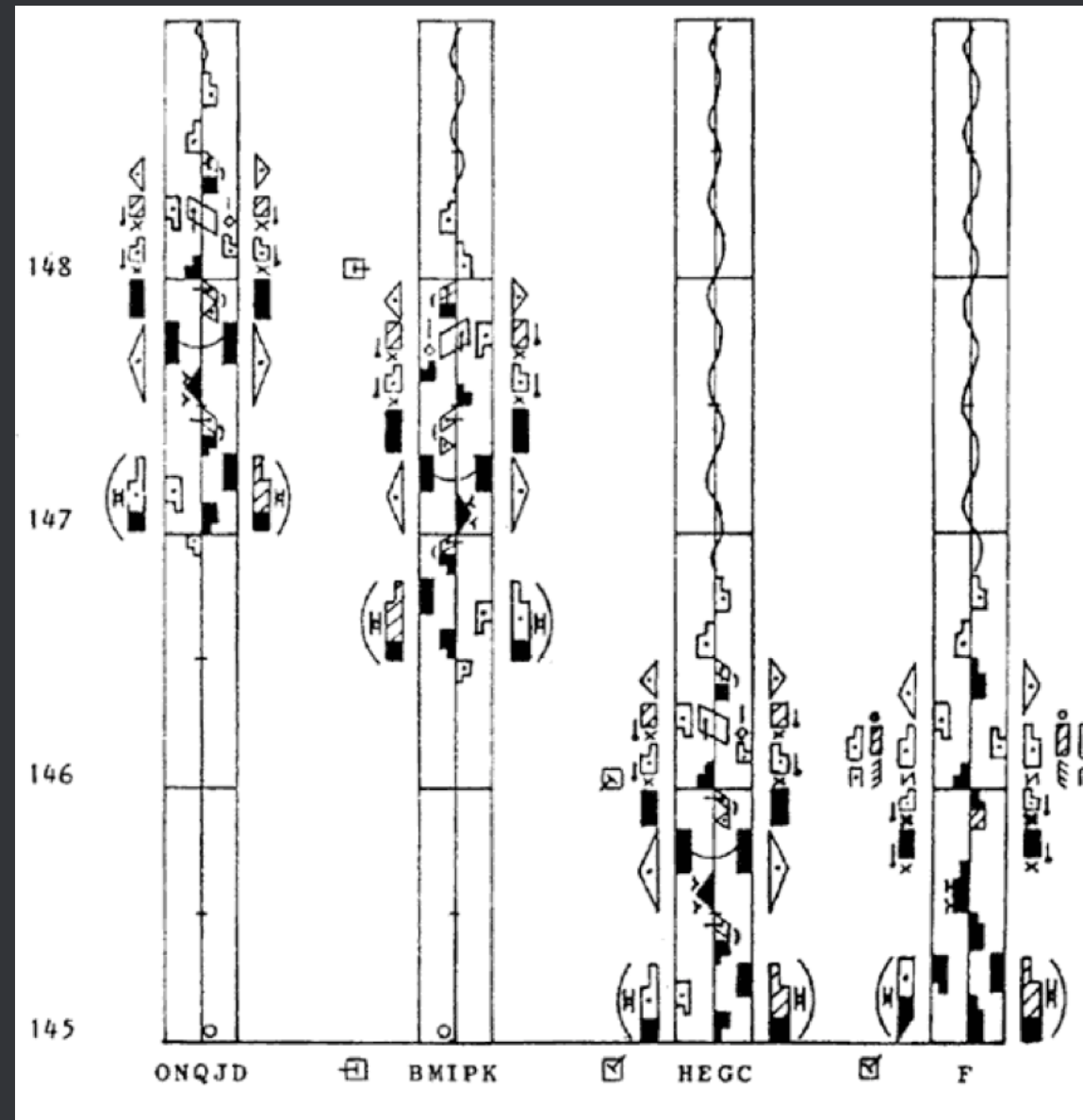
Recueil de Dances (Pecour/Feuillet)

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Dance notations, for a variety of reasons, make music notation seem very straightforward, not least because dance notations are much less common and if they are used, they are frequently used for storage purposes only, rather than for active reading. Music has a common and accepted activity called 'sight-reading' and musicians are commonly expected to 'read' music for performance on absolutely limited rehearsal.

http://rhoadley.net/presentations/icmc2016.pdf
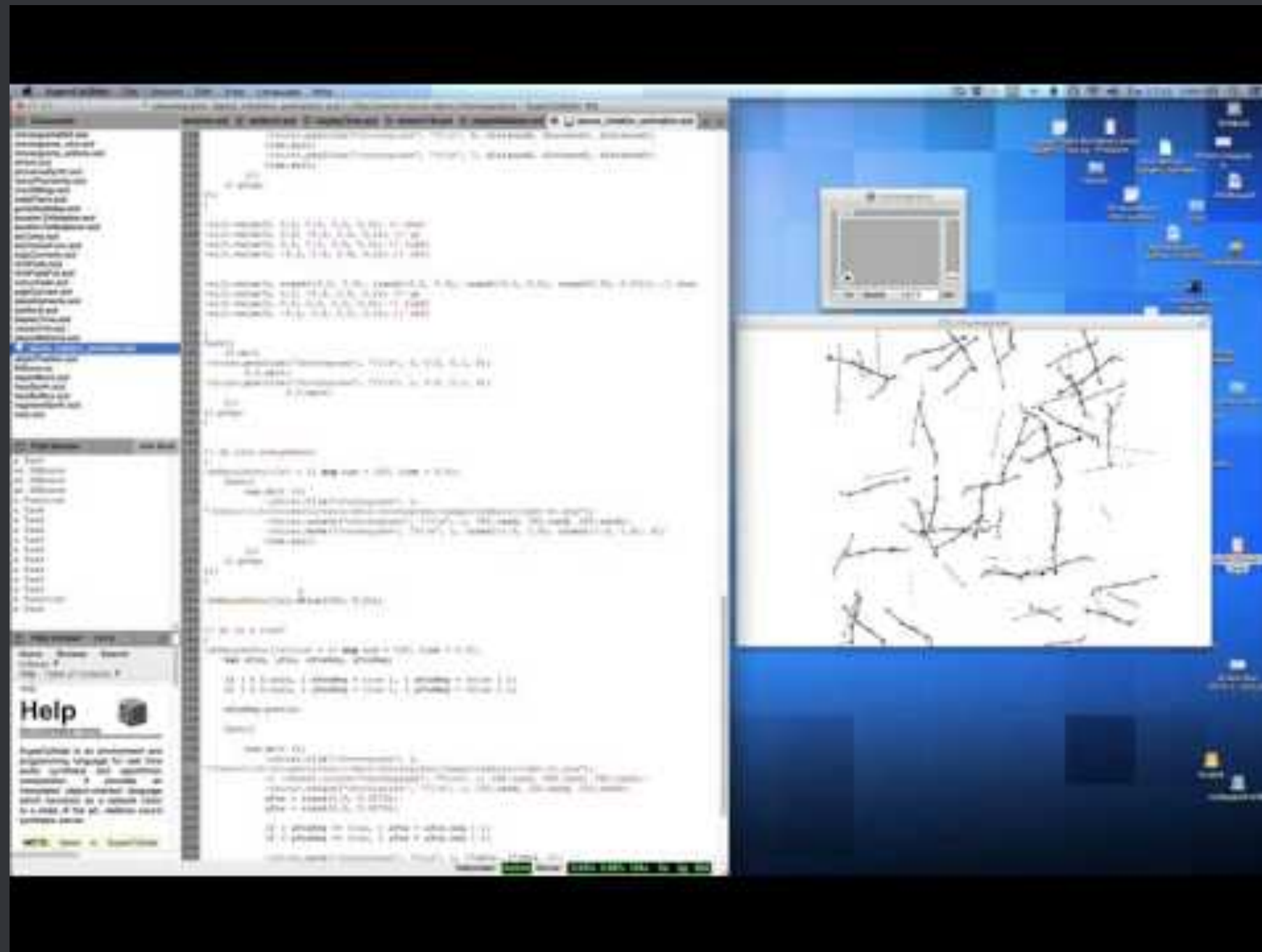
Features of Live Notation

- it emphasises the importance of exploitation of performer's instrumental **virtuosity** and learned response

- it tends to result in a balance between fixed notated performance and **improvisation**: guided improvisation within a more formal, (though possibly generative) structure

- it allows **synchronisation** with multi-domain live performance

Features of Live Notation

- it can include **novel** forms of notation, no longer **fixed** on the page, (although this has its own issues).

- the results don't have to be **all one way** or another, you can mix precise, pre-composed, complex music with **graphics** and **text**.

- it is straightforward to add or remove elements - the 'live' score can itself be **finalised** or **fluid**.

Particular features

- the difference between fixed and dynamic scores. I used to do this:

Since using live notation I really don't particularly want to any more - I find myself asking how I would express myself using this live method - after all, generating an algorithm to create something means you go a little further along the road to understanding how it works. It also allows for a greater range of possible expressions - this may become tiresome after a while, of course (although it is still possible to have those 'moments' to aim for - this is not random...)

Projection

- Projection has been a surprisingly important feature of this work

- Audiences like seeing the notation and performers can, at least in part, use it live

- Audiences and performers both enjoy seeing 'feedback' or 'visualisation' of what they are doing

- Recently we've purchased three screens and projectors to investigate this further

- Also investigating Google Glasses and related products to see whether they can be used to communicate notation to 'active' performers such as dancers

The nature of notated music

- Lydia Goehr quotes a letter from Beethoven:

- "I have never [revised my compositions] because even the slightest change alters the character of the composition" (Letter (in French) of 1813, in *Letters of Beethoven*, ed., E Anderson (3 vols.; New York, 1961), i. 405). Quoted in Goehr 1992 rev 2007, *The Imaginary Museum of Musical Works*, p222)

- Suggests that our interest in fixed scores comes from copyright law and changes in society around 1800 (the *Beethoven Paradigm*).

The nature of notated music

- One criticism of this method - "If the musical content of some of the modules is being generated on the fly, then that creates a more immediate performance issue difficult to overcome. This relegates the performer in those instances to being a mere sight-reader (or expert improviser). I have no evidence that this is indeed the case, but if it were, I'd strongly recommend that pre-composed modules be substituted in their place."

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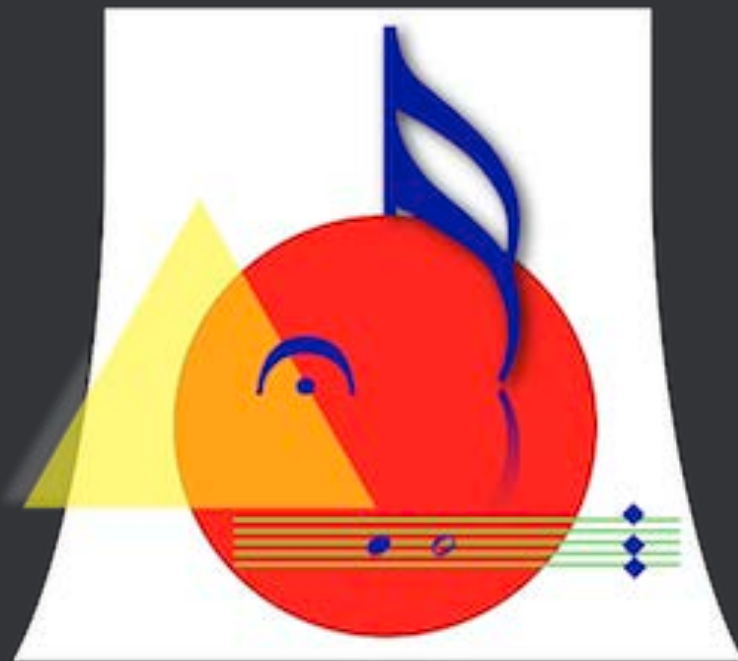
The nature of notated music

- There is a work in notation technology - mainly used to imitate type-setting systems:

  - Lilypond: "**is a music engraving program**, devoted to producing the highest-quality **sheet music** possible. It brings the aesthetics of **traditionally engraved music** to computer printouts.") (http://lilypond.org, 151220)

  - Finale: "Anywhere music appears on the **printed page**, Finale likely created those **pages**." (http://www.finalemusic.com, 151220)

  - MuseScore: "Create, play and print beautiful **sheet** music" (https://musescore.org, 151220)

  - NoteAbility Pro: "**print** a publishable copy of your score on any OS-X compatible printer" (http://debussy.music.ubc.ca/NoteAbility/, 151220)

The tools

- provide a structure for the **generation** of music and/or common practice **notation** as well as text and **graphical** elements (including raster and vector images).

- facilitate communication between **SuperCollider** and **INScore**

- offer the beginnings of a more standard interface for **physical mapping** and **live notation**

which are located...

- https://github.com/supercollider/supercollider

- http://inscore.sourceforge.net/

- http://rhoadley.net/inscore (on request)

Thank you

any questions?

contact:
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http://rhoadley.net/presentations
as **icmc2016.pdf**

video recordings of past performances are at **rhoadley.net/youtube** and
rhoadley.net/vimeo