

Representations of recombinant memory in interactive performance works: some recent examples

Jon Burt and Katie Lavers and Lindsay Vickery

Abstract

Modelling of human memory provides a potent framework for examining the complex and enigmatic nature of human perception. This paper examines three varied explorations of images of mind and memory in works involving live performers and technology by the multi-artform circus company skadada and composer Lindsay Vickery. It discusses the positioning of cognitive structures and their representations within a continuum of technological and human agents. Namely, elements and nodes with 'mind-like' characteristics situated within the human and machine interactions of a cybernetic performance. Three works are discussed: Red Yo-Yo (1995) by skadada, <as viewed from above> (2000) by Vickery and The Quick (2004) a collaborative work by the authors.

Keywords: Performance, Multimedia, Interactive, Dance, Music, Text, Recombinant, Hypertext, Rhizome, Memory, Modelling, Real-time.

Introduction

Western artforms since antiquity have typically used linear narrative structures to convey meaning. Linear forms such as Classical Rhetoric were an attempt to codify the processes of reason and have remained a powerful approach to communicating ideas. Rhetoric reinforced the Socratic notion of a single unified truth, amongst other things¹, and allowed ideas to develop on a societal rather than individual basis. In the 1940s when computing was in its infancy, the ability to store and randomly access information was quickly seen to have "mind-like"² qualities that would allow for individual interpretations and mappings of data rather than directed ones.

These qualities are summarized by Slovenian theorist Zizek who characterizes the non-linear approach as one that '*does not privilege any order of reading or interpretation; there is no ultimate overview of "cognitive mapping", no possibility to unify the dispersed fragments in a coherent encompassing narrative framework*' [11].

The implications of such an approach for artistic works were first articulated in 1963 by Theodore Nelson who conceptualised the branching structure of hypertext (a word he coined) and predicted its potential as a new literary medium:

The link facility gives us much more than the attachment of mere odds and ends. It permits fully non-sequential writing. Writings have been sequential because pages have been sequential. What is the alternation? Why hypertext - non-sequential writing. [9]

Through the speculations of theorists such as Umberto Eco (The Open Work [6]), Gilles Deleuze and Felix Guatarri (The Rhizome [5]) and Roland Barthes (Cardinal Functions [1]) our understandings of the potential, structure and articulation of non-linear, mind-like organization of information have begun to develop a stronger theoretical basis. Through these writings it is clear that these understandings are clearly beginning to bump up against other disciplines such as Semiotics and Cognitive Science.

¹ It also arguably reinforced the political/religious status quo that enshrined the Class System with divine authority.

² Vannevar Bush proposed a method of organizing data "as we may think". [2]

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Semiotics provides tools for understanding the processes and production of meaning in non-linear works. It is undoubtedly useful in the understanding of languages of words and images, but arguably less successful in the decoding of more self-referential artforms such as dance and music³, particularly in their more abstract manifestations.

Cognitive Science may also provide an approach to understanding how computer based models may develop models that more closely resemble memory itself (although definitive models seems still to be a distant objective.). At present however some general principles have been outlined by researchers such as Weyde and Wissmann.

Human memory can be understood as a network of propositions and cognitive structures and can therefore be described in terms of elements or nodes and connecting relations. [10].

Dannenburg, in a summary of the processes involved in musical understanding has suggested that music is a predominantly self-referential language, often relying on '*repetition at different time scales*', of '*elements of the music (that) are repeated or transformed*'. He goes on to describe music as a form of complex domain knowledge in which '*listeners construct encodings when they listen to music, and that the encoding chosen by a listener will tend toward the shortest encoding possible*'. [4]

Abstract dance shares this quality with music, with the crucial exception that it is innately contextualised by its medium: the human body⁴.

The works discussed here do not yet represent an entirely "mind-like" approach to performance and interaction, rather they are steps towards such an approach that use the idea of recombinant memory as a central structural and aesthetic premise. These works operate in a "cybernetic" arrangement placing a human performer and a machine in symbiotic relationship in the production of a performative discourse.

This paper focuses on how such interactive works can create meaningful analogies to memory, how they are understood and how might we harness these understandings in a real-time performance situation.

Red Yo-Yo (1995)

Borges again (Funes Memorias): A person who cannot forget a single thing and is thus incapable of a single creative thought. All memory is no memory. Remembrance is also forgetting.... [7]

Red Yo Yo was a work for a performer encircled by an interactive ring of sensors that triggered audio samples and digital video. The original interactive system was conceptualised, researched and constructed by skadada, including sound artist John Patterson. For this piece skadada directors Jon Burt and Katie Lavers also worked closely with Singapore performance artist Matthew Ngui who had been resident in Perth Western Australia for several years when skadada constructed this piece. The object of our collaboration was to create an interactive system that could act as a physical analogy to the structuring and restructuring of recombinant memory. We chose to use a traditional Chinese song that Matthew remembered from his childhood. The song's lyrics about the impossibility of recalling

³ Dannenburg has suggested that the absence of any general theory of semantics is one of the chief barriers to the codification of recognition and understanding in the field of music. He states that as a result it cannot be '*evaluated objectively in terms of how well it preserves semantic information across a change of representation*'. [4]

⁴ One might of course propose that music is innately contextualised by its medium: soundwaves, in spite of their arguably greater degree of abstraction.

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someone's face seemed ideal subject matter for our work.

What was not known to the collaborators was that the subject of recombinant memory was bound up not just in the lyrics but also their delivery. Matthew had been resident in Australia for some time and had started to forget the words of this song from his youth. Consequently he performed the song with a mixture of Mandarin and Cantonese words (and some that corresponded to no known language). The quality of Matthew's beautiful singing voice also became itself an essential ingredient in the evocative feel of the work. The text that Matthew remembered translated into English as:

The moonlight is reflected on the water. It is beautiful. As I look at the reflections I try to remember your face But the wind moves across the surface of the water The reflections ripple and stir And I find I cannot remember your face.

Samples of his performance were mapped to infra-red sensors arranged on a metal ring encircling the performer who triggered the cut up sound fragments of the song by passing through the beams. The process of selecting a sound sample and then selecting the next sample to layer across it created a physicalisation of the idea of recombinant memory. The video also physicalised the idea of memory, in this case projecting an image of the world on the performer's shaven head as it turns backwards. The image then disappears again as the performer turns away, creating a visual metaphor that "the past being behind you".

The work is a clear example of a "cybernetic" arrangement in which the deconstruction of the text occurs partly in the faulty memory of the human singer and is then amplified by further deconstruction as a result of the live performer's interactions with the machine system. The composite work has a very evocative mood of meditation heightened for native Mandarin and Cantonese speakers who hear their language remolded by human and mechanical means.

<as viewed from above> (2000)

<as viewed from above> is a work for a computer that 'listens' to the live performance of an acoustic instrument as a trigger for proceeding through the samples of a text. It was an initial attempt at developing such a formal structure based on developments in literature such as the "hypertext rhizome".

Theorist Janet Murray has developed a powerful dramatic paradigm for a form of hypertext rhizome she terms a "Violence Hub". The term designates hypertextual works in which a central usually traumatic event such as a car accident or murder is examined from different perspectives.

The proliferation of interconnected files is an attempt to answer the perennial and ultimately unanswerable question of why this incident happened....The navigation of the labyrinth is like pacing the floor; a physical manifestation of trying to come to terms with the trauma; it represents the mind's repeated efforts to keep returning to a shocking event in an effort to absorb it and finally, get past it. [8]

Zizek identifies the potency of this novel formal structure in Lacanian terms as referring to the 'trauma of some impossible Real which forever resists its symbolization (all these narratives are ultimately just so many failures to cope with this trauma)'. [12] *<as viewed>* attempts to sonically reproduce a formal structure of this type.

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At the heart of *<as viewed>* is a short text that is structured in a similar way to Murray's "Violence Hub", as it circles a central irreducible problem in this case a purely emotional one an "Event Hub"⁵. Each line of text is recorded as a separate sound file. The computer can choose to replay and manipulate any previously chosen sound file of text, but is constantly narrowing its own number of text choices. In effect the patch left to its own devices will choose to 'obsess' over - in this case repeating and deforming - an ever diminishing group of samples. The live performance 'distracts' this process and forces it to act upon new material until all of the samples have been exhausted.

<as viewed> responds to a need for new structural models to better take advantage of developments in interactive technology and in particular their non-linear possibilities. The response explores the idea of recombinant memory in lyrical/abstracted manner rather one than based on any formal linking of any 'real' model of the structure of human memory (such as it is understood).

The Quick (2004)

The Quick is an extension of an earlier audio-only work by Vickery called *Splice* [2002]. *Splice* employed synchronized real-time audio sampling of a soloist to impose a formal structure on a live improvisation through repetition and manipulation of the sampled fragments. It is an example of an encoded 'meta-music' - that is a compositional map that is without "contents" until a live performer adds them. The soloist's sounds may be stretched, altered in pitch, echoed or even sunk only to re-emerge later - techniques similar for example to those found in a conventional musical composition - except that they are created by the computer in real-time.

The Quick is an enhancement of the work into the visual domain through the sampling, manipulation and projection of both audio *and* video elements. It takes as its raw material the captured live images of a performance artist and uses them as "contents" in a predetermined structure of iteration. The soloist's visual and audio samples, collected in real-time, are replayed and manipulated (ie through playback speed, duration, volume, loop, pan etc.). Because the sampling is live and somewhat unpredictable (except in broadly statistical terms) the 'contents' of the computer's performance is, in most respects, determined by the soloist. Psychologically the process of interaction between the performer and the computer is quite unusual: the soloist is 'loading' the samples, however the computer still controls the timing of the actual sampling and playback. The computer's timing (although consistent) is opaque to the performer, creating a degree of uncertainty both about *what* has been sampled and *when* it will return. The transformation of the samples (through varied playback speed, volume and panning for example) adds a further layer of uncertainty.

Dancer/Choreographer John Burt and Director Katie Lavers developed a range of material (both movement and text) that focus on the sometimes unexpected significance or certain memories (both mental and body) through their repetition and variation.

The kinds of repetition and transformation exhibited by *The Quick* are standard formal strategies for music and dance. However, unlike a predetermined linear work, the computer is not discriminating in its choice of material: it sculpts any of the soloist's contributions into the same structure without regard to their relationship or context to the previously unfolding performance. Like the vagaries of memory this processes unaccountably privileges certain "samples" of the performance over others.

Conclusion

⁵ In recognition of the wide variety of circumstances, not merely violent ones, that one is cable of obsessing over.

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The three works discussed show a range of approaches to the representation of recombinant memory in the live interactive performance. Their approach could be said to place equal importance on the human and machine components of the interaction. This approach does not yet begin to explore the possibilities of modelling anything but (in the case of <as viewed from above>) the most rudimentary or (in the case of *The Quick*) randomly 'mind-like characteristics.: a fact that does not necessarily diminish the potency of the works. They do however point towards the investigation of cybernetic arrangements in which the computer (as well as the human performer) interact with increasingly sophisticated cognitive models.

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skadada has performed all over Australia and throughout Asia to great critical and public acclaim. skadada has represented Australia at many Department of Foreign Affairs and Trades Initiatives including "Celebrate Australia" a week long celebration of the best in Australian Arts for the 4th China

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Shanghai International Arts Festival. The Shanghai Press wrote:

"a new style performance of multimedia dream acrobatics . . . an intense and excellent experience."
Xinmin Evening Post, Shanghai, China

"a dreamlike fusion of different arts with vivid images and outstanding ideas characterised by both consummate skill and surreal beauty."
Shanghai Midday News, Special Festival Edition, China

skadada runs workshops and residencies all over the world and also runs a highly successful training program the "skadada youth runway" in Perth Western Australia training elite young physical performers to combine martial arts, dance, gymnastics and circus .
More information is available at: <http://www.skadada.com>

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