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ISSUES IN INSTRUMENTAL DESIGN: THE ONTOLOGICAL PROBLEM (OPPORTUNITY?) OF ‘LIVENESS’ FOR A LAPTOP ENSEMBLE

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ABSTRACT

Through the recent work of MMUle¹, this paper will explore issues in new instrumental design for ‘live’ performance. For MMUle, the intimacy of the interaction between human and machine is exposed through ‘live’ performance and this has resulted in the relationship between musician and machine being in a process of constant negotiation. Subsequently, the paper will consider some of the technical approaches and performance strategies MMUle has developed in an attempt to better interact with technology through the design of new instruments for musical performance. It will consider the relationship between the musician and the computer as musical instrument; it will consider the causal relationship between performative action and resulting sound, which has remained an issue for some spectators of music laptop performances and will explore this in light of MMUle’s approach to expand the affordance of the laptop computer in relation to its musical and performative potential; and some consideration will be given to the use of interface devices such as the computer program MaxMSP, the games controllers x-box and wii, and the human body as MMUle attempt to interact with machines. The paper will discuss some of the implications and applications of developing new software instruments for performance and this will be explored through two pathways to ‘liveness’: performance as a constructed ‘live’ event and ‘liveness’ considered as part of a creative strategy.

1. WHO ARE WE?

MMUle was set up in 2008 within the Department of Contemporary Arts at Manchester Metropolitan University to explore issues in performance practice, composition and improvisation through laptop and other technologies within the context of interdisciplinary arts practice. The ensemble has worked closely with practitioners from a variety of traditions (dance, contemporary theatre, visual arts, music)

¹ It is the author’s intention to make all works discussed in this paper available as audio and/or video files. Please email the author for full details of the web link to MMUle files.

within the wider context of contemporary art and since 2010, has developed its practice as a trio with the laptop performers and composers, Martin Blain, Nicholas Donovan and Paul J. Rogers. All three performers run Max/MSP on a MacBook Pro, control a variety of MMUle developed patches, with each performer generating sounds through an individual portable powered speaker. Subsequently, each musician performs on a self-contained ‘instrument’.

2. NOTIONS OF ‘LIVENESS’

2.1. Performance as a constructed ‘live’ event

With the introduction and development of reproduction technologies throughout the last century, notions of ‘liveness’ have continued to confused, excited, frustrated, and divided critical thinkers on what we may understand by the term ‘liveness’. Before the development of reproduction technologies performance was experienced as it happened – there was no alternative. However, the development of analogue and more recently digital technologies has had a profound impact on the way creators make work and spectators² encounter the product. Back in the late 1970’s consumers were asked ‘Is it live or is it Memorex?’³ For those of us too young to remember the advertising campaign, the product offered repeatable performances of live or mediatized events, time and time again at a place in time convenient for the consumer. Life (or rather ‘entertainment’) as we knew it was about the change for the better – or so they proposed. Of course, the medium the product was being advertised through – television – in those days had inferior quality audio systems and was not able to demonstrate the full potential of the new technology. I particularly remember the poor audio re-production quality of the ‘mono’ speaker enclosed in the television I had access to at that time. However, what was presented through a variety of mediatized technologies at the time as being ‘live’ was pretty much re-

² My use of the term ‘spectator’ is taken from Stanton B. Garner’s, Jr [11] use of the term representing an individual participant within an audience.

³ See <http://www.youtube.com/watch?v=Bkt8Dwz16Sg> [16]

created as near to the conditions of the 'original', at least at the level of audio and/or visual duplication, through the new magnetic tape technology. The counter-claim, from the Musicians' Union was to 'Keep Music Live'⁴. However, the introduction of re-production technologies into the market place, had, for some critical thinkers, called into question the status of 'live' performance. During the 1990's these contradictory positions on 'liveness' were reflected in the writings of Philip Auslander and Peggy Phelan.

2.1.1. *The Auslander/Phelan position*

In response to this new order, Auslander argues that the cultural economy has created a 'competitive opposition' between the live and the mediated and suggests that modern audiences have become desensitized to its effect. However, he suggest that this opposition is not derived 'from the intrinsic characteristics of live and mediated forms but, rather, as determined by cultural and historical contingencies'. [1,11] From this position he goes onto reject the argument for there being ontological differences between the 'live' and the 'mediated'; for Auslander, the construction of 'liveness' appears to be determined by historical rather than ontological conditions.

Peggy Phelan, offers a contradictory view of 'liveness'. For her:

Performance's life is in the present. Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations of representations: once it does so, it becomes something other than performance. [18,146]

Here, Phelan, connotes that, for her, there is a causal relationship between performance and presence and that presence exists in the performance space to be experienced by those present in the space at a particular moment in time determined by the performers. Subsequently, for her, the degree to which 'performance (and I take this to mean 'liveness') attempts to enter the economy of reproduction it betrays and lessens the promise of its own ontology'. (18:146) For Phelan, there is 'value' and 'celebration' in the 'impossibility of seizing/seeing the real anywhere anytime.' (18:192)

For the laptop musician developing work within an interdisciplinary context for 'live' performance through the sonic manipulation of 'live' and 'mediated' materials there is much fertile ground to explore here. Viewed from the horizon of the laptop these positions appear contradictory not complementary.

2.1.2. *Disrupting the real - Dreaming Of Giotto*

My work *Dreaming Of Giotto* for Piano and Laptop (piano samples) was devised to be performed in an art gallery to accompany the paintings of Val Kosh. One of the conceptual ideas for this piece was to explore notions of 'liveness' through the juxtaposition and manipulation of sounds recorded in different acoustic spaces – highlighting the space between the real and the virtual. A set of piano fragments was composed, conventionally notated, performed by the pianist Philip Thomas and recorded in the studio⁵; in response to each fragment, I recorded a set of improvised piano responses in the form of small motivic gestures/fragments, recorded at a different location on a different piano. The performance strategy used in the realization of the work combined three levels of activity: machine instillation/performance; laptop performance; pianist/improviser. Whilst the machine instillation/performance activity underpinned the duration of the exhibition, the installation/performance activity was 'disrupted' by interventions of between 20-45 minute performances from either or both the laptop performer and/or the pianist. The machine instillation was controlled by a Max/MSP patch that juxtaposed and manipulated the pre-recorded piano samples – there were also moments of silence built into the programming to heighten the ritual of performance activity when sound did occur. The laptop performer developed compositional/improvisatory strategies to combine and manipulate the pre-recorded piano samples as appropriate to the requirements of the performance space and in response to the perceived energy being generated by the spectators encountering the work at different times throughout the day. In addition, when performing with the pianist the laptop performer would take a 'live' feed from the piano adding an additional layer to the musical texture.

Whilst the three levels of activity were performed 'live' in the space, it is difficult to see how this particular performance strategy could locate itself within the critical positions suggested by Auslander and Phelan. It has what Phelan would identify as 'presence' represented in the devising/improvising/performing work of the laptop performer and pianist working in real-time. Similarly, my attempt to draw attention to the medium of recording as a compositional device and performance strategy as well as through the mediatization of both an acoustic instrument and the properties of an acoustic space would not fit well with the central concerns of Auslander's position.

The notion of 'disrupting' established practices and navigating a trajectory between the 'live' and the 'mediated' is considered in the work of Susan Broadhurst. Writing about and considering how new performance practices have begun to emerge in some arts disciplines, she suggests that 'tensions exist within the

⁴ Keep Music Live was first used as a slogan in 1965. See <http://www.musiciansunion.org.uk/> [14]

⁵ My thanks go to Dr Jason Woolley at MMU for his expertise and time in the recording of both sets of samples for this work.

spaces created by [the] interface of body and technology' [3:1] and has defined these spaces as 'liminal'. They exist for Broadhurst on the 'threshold' of the physical and virtual worlds – this can refer to the connection between performer and machine as well as the connection between performance and spectator. Broadhurst suggests that 'it is within these tension-filled spaces that opportunities arise for new experimental forms and practices. [3,1]

2.1.3. Performer and Machine; Performance and Spectator

To consider the opportunities Broadhurst suggests may arise when attempting to 'disrupt' established modes of thinking and practices, it may be useful to consider how musical performance is working in more conventional spaces within more established traditions and then to consider how this might apply within MMUle's developing practice.

On 2nd July 2009, *Steve Reich* and *Kraftwerk* appeared 'live' at the Manchester Velodrome in a double header as part of the Manchester International Festival. Steve Reich composed a new work *2x5* for the American New Music Ensemble *Bang On A Can* and *Kraftwerk* performed works from their back catalogue. In relation to our discussion on 'liveness', my experience of the two performances, was significantly different. Luke Bainbridge, from the *Observer* Newspaper appears to have had a similar experience of the event:

Whereas the Velodrome seemed to hamper Reich's *2x5*, with the cycle track distancing the audience from the band like an athletics track can do at some football stadiums, for *Kraftwerk* it suddenly, inevitably, makes perfect sense. [2]

For *Kraftwerk*, having the GB cycling team wizz around the track during part of the performance only added to the occasion. The issue for me was simple: *Kraftwerk* worked at establishing a 'presence' in the space: *Bang On A Can*, at this venue and with this particular audience did not.

Cormac Power, suggests that '[t]heater and presence...are so connected as to seem almost synonymous.', [19,1] and considers 'presence' to be manifest through a variety of constructed approaches. For Power, 'presence' can be located not only in the relationship between the physical performers and the spectators, but can also be afforded to inanimate objects present in the performance area. Power's identification of the use of technological 'presence' as one example of inviting the spectator to experience the event as 'live' may also begin to explain how the individual members of *Kraftwerk* were able to maintain the conditions of 'liveness' during their 'absence' from the performance area for part of the evening's performance. My recollection of the event was that while *Kraftwerk* constructed a 'live'

environment from the elements at their disposal (space, presence, etc.), *Bang On A Can* did not. The notion of constructing 'presence' through the juxtaposition and considered manipulation of human performers and inanimate objects present in the performance area was considered in the realization of *Dreaming Of Giotto*.

2.2. Performance codes

For MMUle, positioning an emerging laptop performance practice within the wider context of musical performance within the performing arts is problematic. Jim Cascone once said: 'Falling into neither the spectacularized presentation of pop music, nor the academic world of acousmatic music, laptop musicians inhabit a netherworld constructed from performance codes borrowed from both.' (5:6) Whilst the *Kraftwerk* and *Bang On A Can* performances contained some of the performance codes Cascone associates with popular music, at the opposite end of the performance spectrum it is useful to consider how performance practices work within the field of electroacoustic music. Simon Emmerson suggests that 'presence' in electro-acoustic performance might exist in three simultaneous and interacting states: the physical, the psychological, and the personal and social. [8] Emmerson suggests that at the 'physical' state:

Most music now heard appears to present little evidence of *living presence*. Yet we persist in seeking it out. From grand gesture to a *noh*-like shift in the smallest aspect of a performer's demeanour, we attempt to *find relationships* between action and result. [8,xiii].

Whilst the relationship between performative action (cause) and resulting sound (effect) remains an issue for laptop performers engaging in 'live' performance, within the world of electroacoustic music performance, the issue of causality that connects seeing to hearing does not appear to receive the same level of attention. In fact, Emmerson, more recently, when discussing cause and effect directs his attention to the relationship between the 'hearing' of a cause and the 'hearing' of an effect. [9,269]

At the 'psychological' state we are encouraged to search for 'clues' as to how the sound materials are likely to develop over time throughout the work (setting up patterns of expectation that are either fulfilled or denied); and the 'personal and social' state considers the encounter's relationship with the work in performance within the context of their own belief system; here, Emmerson, suggests, for example, that 'presence' might exist in the 'meaning of the utterance' of the work or in the 'aura' generated by the performer/performance.

Within this particular tradition, notions of performative 'presence' are realized through what Emmerson defines as 'the sounding flow';[8,30] the 'sounding flow' is prioritized over any resulting visual

stimuli that may result as a consequence of human or machine interaction taking place in the performance space at the same time. Retreating a little from this extreme position, MMUle, working within an interdisciplinary context, has chosen to locate its musical practice within the wider context of contemporary art where the audio and the visual complement one another. In support of this position, Gordon Graham suggests that:

The proposition that music is for listening to...should not be confused with the false proposition that music is *only* for listening to. On the contrary, music is one of the *performing arts*, and most composed music has been written first and foremost for ['live'] performance. [10,210]

2.3. On performing and not-performing

One approach I have found useful in developing constructions of 'presence' and considering the relationship between the Performance and the Spectator for laptop performance is through Michael Kirby's work *On Acting and Not Acting*. [12] Kirby offers a continuum of states for acting with no values of privileges given to each condition. Kirby suggests that, '[t]o act means to feign, to simulate, to impersonate'. [12,43] He goes on to claim that not all performing is acting and that it is possible (in fact encouraged!) to move between states within a performance. I am not suggesting here that musicians (laptop or other) should consider their musical performance in terms of their ability to act, but a spectator, as Broadhurst has suggested, will, when presented with a body in a performance space attempt to make sense of the complexities of the work.

Kirby's continuum for acting/not-acting contains five positions⁶: non-matrixed performing, symbolized matrix, received acting, simple acting, complex acting. Kirby suggests that whilst 'the differences between acting and non-acting may be small...it is precisely these borderline cases that can provide insights into acting theory and the nature of art.' [12,43] The application of Kirby's continuum to 'live' laptop performance practice as a way to better understand how bodies (human – performers/spectators and inanimate objects) can work and interact in the performance space maybe a useful path to explore.



Fig.1: MMUle performing the first section of *Cut Up Slow Down*. MMUle performers from left to right: Nicholas Donovan, Paul J. Rogers, Martin Blain.

Cut Up Slow Down, is a work initiated by Paul J. Rogers and devised by MMUle. The work's improvisatory structure take c.15 minutes to complete and is divided into three independent sections with each section exploring a specific performance strategy. In the first section two performers use body movement to initiate and control pre-recorded samples. Hand gestures (the causal agent) are presented to the computer's in-built video camera and the resulting 'effect' is controlled by a bespoke Max/MSP patch. As a counterpoint to this activity, a third performer develops a simple but continually changing ostinato pattern by performing precise movements on a wii controller that generates material through a bespoke Max/MSP patch; Fig.1, shows a visual representation of this section in performance. In the second section, all performers use a games controller to generate and manipulate the 'sounding flow' through a different bespoke Max/MSP patch which is further exploited in the final section where each laptop performer, at a pre-determine time, stops performing on their laptop computer and moves towards the microphone to become a sound generating agent for the other two laptop performers to 'capture' the 'live' sound for processing as determined by the demands of the 'sounding flow'. In past performances, sounds generated for 'live' capture have included a variety of small percussion instruments, vocal sounds, a broken zither (as seen in fig.1) and toy instruments.

MMUle's approach to developing and constructing 'presence' in this work has been through a process of play and experimentation. Allowing each performer to choreograph (but not fix) specific performative actions through a process of collective and collaborative interaction with the sound materials at play, has enabled a personal and spatial relationship to develop between the musicians in the performance space and this has facilitated and encouraged a 'meaningful response' to develop between the performers and spectators. Whilst the

⁶ See Kirby [12] for a full explanation of each state along the continuum.

development of a Kirby-led performative continuum is ongoing, the development of this approach has begun to address the wider performative issues concerned with laptop performance. The physicality of the performer through movement and gesture gives a sense of purpose to the performance, and there are enough ‘clues’ offered by each performer to regain a hint of connection between the visual and audio streams for the spectator to be convinced that what they are experiencing is taking place ‘live’ in the performance space. I should add that this approach is not intended to undermine the ‘aural performativity’ of laptop performance as identified by Caleb Stuart, but is intended to encourage and facilitate for the spectator, a ‘shift in understanding...from a visual focus to that of aural performativity.’ [20,60] This approach and level of engagement can be negotiated appropriately.

The Kirby model has been useful for MMUle not only in attempting to better understand how notions of ‘presence’ can help to build relationships with spectators, but it can also begin to address some of the key issues that have challenged the spectator when attempting to engage with laptop performances⁷. Through MMUle’s adaption of Kirby’s paradigm, the apparent loss of connection between performative gesture and resulting sound has to some extent, been regained; the level of technical and musical interpretive skill needed to perform on the instrument (machine) has been made evident, not only in the ‘sounding flow’ of the composition but also through medium of the ‘visual’ performance; and the apparent distrust from spectators regarding the relationship between performer and machine in relation to laptop performance is being resolved as spectators are provided with more ‘clues’.

In *Cut Up Slow Down*, the relationship between each performer and machine as presented to the spectator has been carefully considered. For me, there is a ‘presence’ established between the performers and their machines and this ‘presence’ is offered to a spectator as being ‘live’. This notion of considering the relationship between mediated forms and their impact on spectators has been further explored in the work of Freda Chapple and Chiel Kattenbelt, within the contextual framework of intermediality.

Freda Chapple and Chiel Kattenbelt suggest that ‘intermediality is a dominant trend in the arts and media’ (6,11). They continue:

We locate intermediality at the meeting point in-between the performers, the observers and the confluence of media involved in a performance at a particular moment in time. The intermedial inhabits a space in-between the different realities that the

performance creates...[intermediality] operates in-between performer and audience; in-between theatre, performance and other media; and in-between realities – with theatre providing a stage for the performance of intermediality. (6,12).

2.3.1. *The Stranger – an intermedial Opera*

The intermedial approach informs MMUle’s current project: *The Stranger – a Laptop Opera*. MMUle is collaborating with the experimental theatre company *proto-type theatre*, a video artist and a lighting designer on the development of a music theatre work. The work takes the novel, *The Stranger* by Albert Camus as its starting point and through a process of experimentation is beginning to discover ways to juxtapose, and interact with a variety of media. Each member of MMUle is sonically attached to a designated actor/vocalist. At a basic level the vocal sounds produced by an actor/vocalist are captured by a laptop performer and used as source material for improvised sonic structures. However, at a more profound level the relationship between the laptop performers and actor/vocalists is encouraged to develop as they begin to explore the creative opportunities the technologies afford.



Fig.2: Paul and Gillian rehearsing a section from *The Stranger*.

Fig.2, shows Paul J. Rogers and Gillian Lees working in the early stages of the process. Here, they are exploring the relationship between the sounds and movements they are creating: this improvisation begins with Paul capturing the vocal sounds Gillian is producing and Gillian is copying the physical movements Paul is making as he interacts with his computer to control and manipulate the captured audio. At moments during this particular session it became evident that both Paul and Gillian were working in, or trying to find sub-consciously, that space Broadhurst has defined as ‘liminal’. For moments in this

⁷ For a further discussion of some of these issues see Stuart [20], Morris [13] and Cascone [4].

improvisation Paul and Gillian reported that it was not apparent who was initiating material and who was reacting to the process.

The process of identifying and documenting ‘insights’ in this work is explored in this project through a practice-as-research⁸ (PaR) methodology. PaR is a methodology used by practitioner-researchers to undertake a piece of research where practice remains a substantial element of the research inquiry. Whilst the PaR initiative, in England, is more established as a research dissemination tool in most other arts practices, this methodology has attracted little attention within the wider music research community. One method developed within this PaR inquiry has been for all practitioners (from different arts disciplines) to share in the process of critically reflecting on their participation in the creative process. As Robin Nelson suggests, this way of developing work, within the context of a PaR inquiry exploits the notion of ‘play’ as a ‘method of inquiry, aiming not to establish findings by way of data to support a demonstrable finite answer to a research question, but to put in play elements in a *bricolage* which affords insights through deliberate and careful juxtaposition.’ [15,109]

One of the performance strategies used in the development of this interdisciplinary approach to the making of work has been to facilitate periods of personal and critical reflection during the making of the work and this has encourage all practitioners to search for and discover the ‘liminal’ meeting points Broadhurst, Kirby, Chapple and Kattenbelt have identified and have encouraged practitioners to explore.

In the opening section of *The Stranger*, I have initiated material for further development: vocal sounds (sung harmonic textures, whispered speech, extended vocal techniques) combine with acousmatic sounds that are suggested within the text of the novel (footsteps, parakeets, breathing, buzzing hornets, etc.). Through a process of ‘play’ this initial material is being presented and manipulated in a variety of ways and encouraged to collide with the creative processes being explored within the disciplines of the other collaborators and this is leading to the development of new ‘insights’ within MMUle’s developing practice.

The interplay of ‘live’ and ‘mediated’ forms in laptop performance has generated new formal structures for musicians to consider. Steve Dixon and Barry Smith are, ‘unequivocal that the conjunction of performance and new media has and does bring about genuinely new stylistic and aesthetic modes, and unique and unprecedented performance experiences, genres and ontologies.’(7:5)

⁸ In 2001, the University of Bristol ran a five-year AHRB funded project: Practice as Research in Performance (PARIP) to ‘investigate creative-academic issues raised by practice as research.’ (<http://www.bris.ac.uk/parip/introduction.htm>) (accessed 20/1/12). [17]

2.3.2. At the end of this pathway

We began our discussion on ‘liveness’ as a constructed ‘live’ event from the binary opposition perspectives of Auslander and Phelan. Viewed from their specific location ‘liveness’ appeared to be reductive and divisive – Auslander and Phelan may now appear far away. Given the more recent thinking around notations of ‘liveness’ and in particular the ideas that ‘liveness’ may not just be linked to what we have come to understand as those constructs of time and space but may also be considered in dialogues with other ‘realities’, - there is a suggestion here that the locus of ‘liveness’ may have shifted from the position of time, space and location to the cognitive space of the spectator. I am excited by the fact that this may now be an opportunity particularly for those who wish to accept it to regain consciences from the desensitised would of ‘liveness’ Auslander would let us believe we have existed in.

2.4. ‘Liveness’ - a creative strategy

For the second part of my journey into the complex world of working with notions of ‘liveness’, I would like to navigate a pathway that considers the potential of exploiting both ‘live’ and ‘mediatized’ audio forms as part of a compositional strategy. As we have seen from the recent work of MMUle, digital recording technologies have made it possible to record, perceive and manipulate the subtle differences of ‘live’ and ‘mediatized’ forms. In *Dreaming Of Giotto* for example, the subtle differences in spatial properties imbedded in the recordings of both pre-recorded pianos is made evidenced when heard in juxtaposition; the spatial ‘presence’ in the recordings are further heightened when combined with the sound of a ‘live’ pianist performing in the performance space.

Navigating a compositional trajectory between the ‘live’ and the ‘mediatized’ is problematic: at best, there is much to see and explore; at worst, the terrain may appear hostile and uninviting. Whilst in most cases, the acoustic properties inherent within and between ‘live’ and ‘mediatized’ forms may be relatively easy to decode for performers and spectators, it is the decoding of the subtle acoustic differences afforded to specific types of media that is potentially more difficult to decipher. However, it is within these tension-filled spaces that, for MMUle, have provided materials for compositional structures to expand and develop.

One approach I have found useful in developing this particular approach to laptop composition in performance is to plot out a few notable coordinates I have discovered along the way. My approach to ‘liveness’ – and by this I mean developing computer instruments for performance, has resulted in thinking about the ‘live’ and the ‘mediatized’ as points along a continuum. Within the recent work of MMUle the following ‘live’ and

‘mediatized’ materials have been used for the development of compositional structures:

Mediatized Live Digital Samples: these samples include sound sources recorded in advance of performance and can be recordings of acoustic instruments. The recordings of two pianos, each in a different special location is an example of this type of recording – within *Dreaming Of Giotto* two sets of Mediatized Live Digital Samples were used in juxtaposition with a ‘live’ performer in the performance space.

Second Generation Mediatized Live Capture: these samples are captured ‘live’ in performance and are intended to highlight the mechanical ‘presence’ of the medium being recorded. In a recent performance of *Cut Up Slow Down* within the final section, sound samples are captured ‘live’ through the medium of vinyl. The term ‘second generation’ is used to infer that this form of capturing will purposefully expose the identity of the ‘mediatized’ form. In other works, not discussed in this paper, this form of capturing has been used to expose tape-cassette hisses as well as radio interference within the compositional structure.

Live Acoustic Capture: this point on the continuum represents any sound captured ‘live’ in the moment of performance. This mode of capture has, for MMUle, produced some unexpected but extremely interesting results as it is not always possible to predict what will happen in the moment of performance, both within the sound source being recorded as well as the environment being captured. In *Dreaming Of Giotto*, the ‘live’ piano sounds were captured and processed alongside the Mediatized Live Digital Samples manipulated by the laptop performer. Within sections of *The Stranger*, vocal sounds in the form of sung text, whispered recitations and experimental vocal techniques are captured and exploited within the developing musical texture. At times, in both works, background sounds (both unpredictable and planned) were included in the audio file at the moment of capture resulting in structural implications for the future direction of the ‘sounding flow’.

Acoustic Human Sound Capture: this mode of capture has been particularly useful for MMUle in the development of *The Stranger*. A radio microphone is attached to each actor/vocalist and is used to develop ‘location’ sounds; these may include the sounds of footsteps, percussion body sounds, sounds made with objects in the space. This approach, whilst producing a rich variety of sounds for sonic manipulation also invites the spectator to witness the cause and effect during the production of the sound. With these audio files stored for use later in the work, the spectator has been provided with the ‘clues’ to know how some of the materials has been

produced facilitating a potential relationship pathway, between the spectator and the performers, to develop.

Live Image Capture: working within an intermedial context, the capturing of visual images for editing and playback by the video-artist during the performance of the work is providing an opportunity for the video artist, MMUle, the lighting designer and the actor/vocalists to begin to explore potential meeting points in-between the different realities that the performance and technologies suggests. This is a new point of departure for MMUle the results of which will be disseminated in a separate paper.

In *Dreaming Of Giotto*, *Cut Up Slow Down* and throughout the initial rehearsal process for *The Stranger*, one approach to developing a compositional strategy has been to allow materials from one or more of these categories to collide as part of the devising process. Each mode of sonic representation listed above, has generated a certain type of sonic ‘presence’. My initial analysis of the materials would suggest that Mediatized Live Digital Samples highlight the ‘spatial’ dimension; Second Generation Mediatized Live Capture bring into focus the ‘mechanical’ representation of the medium being recorded; Live Acoustic Capture can work as a means to a ‘dislocation’ of time; Acoustic Human Sound Capture can highlight the ‘causal’ properties of the medium and Live Image Capture will give preference to the ‘visual’.

Whilst, as suggested in these definitions, the distance from the ‘live’ to the ‘mediatized’ may be small and in many cases it may be difficult to classify within my conceptual framework, this approach has shed some light for me and MMUle on a compositional possibilities the introduction of digital technologies has afforded laptop performance practice. The continuum of points between the ‘live’ and the ‘mediatized’ will no doubt expand as MMUle’s performance practice continues to develop and explore new pathways. For now, the continuum has proved to be a useful starting point to develop a compositional strategy. So how has this approach to sonic design impacted on the development of a digital instrument?

2.4.1. Instrumental design for ‘live’ performance

As Phelan suggests, there is something ‘special’ about live performance that is lost when reduced to a recorded form. With live performance the spectator is invited to witness those characteristics we have come to understand as performance. These characteristics may include, as I have already suggested, the ability to build a relationship with a spectator through personal and performative understandings of ‘presence’; by being able to ‘communicate’ the meaning of a musical structure to a spectator through technical skill and musicality as demonstrated through an accomplished instrumental

technique; as well as being able to transcend a spectator through the experience of performance.

Whilst MMUle has already begun to address some of these issues through its own developing performance practice, many of these characteristics of performance that spectators have come to expect have needed to be renegotiated in light of the new technologies available to musicians. By positioning ourselves within Kirby's matrix MMUle has begun to build a relationship with its spectators. However, it is the intimacy of the interaction between the laptop performer and 'instrument' that is of particular interest to the members of MMUle as they continue to work at developing a particular laptop 'technique' that can demonstrate technical skill in relation to musical intent.

Fig.2, is a multifunctional Max/MSP patch⁹; it is divided into eight areas of activity and attempts to address the issues of causality by providing an opportunity for the performer to work with physical interface units to demonstrate both interaction with the machine and to provide visual 'clues' to the spectator that the 'sounding flow' is being controlled 'live' by the performer. The 'Gamepad Selector' facilitates a connection to a *Logitech Dual Action* controller.

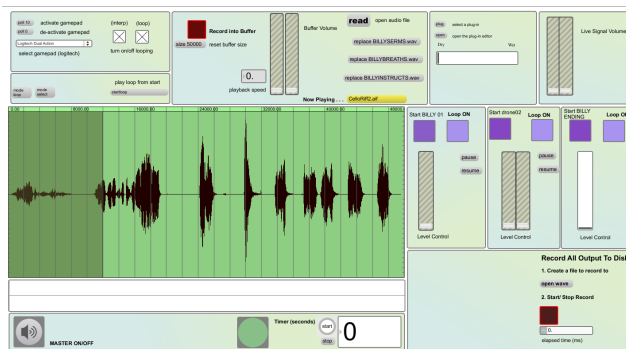


Fig.2: Multitasking Max/MSP patch used by MMUle

Audio samples to be used as performance materials can enter the patch at four locations: 1) the 'Record Into Buffer' – this captures all 'live' forms presented in the performance space; 2) the 'Pre-Recorded Buffer' – this makes available to the performer a selection of pre-recorded audio samples; 3) 'Live Capture' – this facility amplifies any incoming audio; and 4) three 'Pre-Recorded Loop Buffers' – this section provides pre-selected materials normally to be used as sonic support structures to facilitate audio transitions should they be required. Sound captured within either of the audio buffers can have its waveform represented at the 'waveform~' window. The audio waveform represented in the window can be

manipulate through various interactive pathways: this includes adjusting the playback speed of the sample, working with external effects devices and manipulating the start and end points during playback of the waveform; each of these sample manipulating techniques can be controlled through the interface device.

2.5. Conclusion

At this point in my journey along these two contrasting but complementary pathways towards developing an understanding of how 'live' and 'mediatized' forms have begun to co-exist in contemporary performance, I am reminded of the many deviations from the route I took that I was tempted to make, and, of course, these pathways will no doubt be returned to and explored in future MMUle projects. For the laptop musician developing work within an interdisciplinary context for 'live' performance through the sonic manipulation of 'live' and 'mediatized' materials there has been much fertile ground explored. The view from the horizon of the laptop now looks very different. Along the way I have discovered a variety of conceptual frameworks that have shed some light on the complex web of relationship that had needed to develop to begin to understand the mechanisms at work in 'live' laptop ensemble performance practice. Through the recent critical constructs developed within the area of intermediality, the network of connections has expanded to include not only the tripartite relationships between the performers and spectators, the performers and media, and the spectators and media, but also within the relationships between the different realities contemporary performance creates.

When turning our attention to the development of new instrumental designs, this has raised a number of still unresolved issues for the laptop musician to explore. For MMUle, the development of a computer laptop for use as a musical instrument seems almost synonymous with the issues surrounding 'live' laptop performance. The meeting places commentators such as Broadhurst, Cascone, Chapple and Kattenbelt, Emmersion, Kirby, Phelan and Power have identified as potential areas for further developments in locating new innovative practices, has provided a useful starting places for discovery. At the global level we have travel far on both pathways. However, the journey has been most productive when exploring the terrain at the micro level, be it locating the 'liminal' spaces identified by Broadhurst; the performance codes explored by Cascone; the intermedial relationships considered by Chapple and Kattenbelt; or, in fact, the importance placed on the development of 'presence' as part of a performance strategy by Kirby, Phelan and Power. These excursions have been the most productive in providing frameworks that now allow us to 'play' within considered structures. We are only just beginning to understand the creative potential of this new form of practice, but it is already having a major impact on the way

⁹ MMUle would like to thank Dr Jason Woolley for his initial work on the development of this patch. Jason was a core member of MMUle between 2008-10.

MMUle positions the computer as musical instrument in the wider context of its practice. There is still much work to be done to unpack the initial findings of this inquiry, however, by exploring the conceptual frameworks of other contemporary arts disciplines, it has been possible for MMUle to begin a voyage of discovery. Where this will lead to only time will tell.

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