

MUSIC FOR AN EXHIBITION: ENKI AND THE IDAA.

Dr David Sudmalis

School of Visual and Performing Arts, University of Tasmania, Launceston, Tasmania, Australia

Abstract

The International Digital Art Awards 2004 (IDAA) opened in the Academy of the Arts, Launceston, Tasmania, Australia. For this exhibition opening, a new work was composed employing digital technologies, live electronics and spatialisation. Called ENKI (for flute, digital audio and live electronics), the work examined gestural composition within an electro-acoustic framework whilst concurrently investigating the potentials of the cavern-like space of the performance venue.

This paper examines strategies for composition through the employing of a gestural composition methodology, and the examination of conceptual or physical limiters on the work itself. There is also examination of performer improvisation within a fixed and organised framework. Ultimately, the piece is to be seen as a counterpoint to the visual art within the exhibition, with the extrapolation of visual techniques to the domain of audio, and the exploration of interpretative and improvisational possibilities born of the gestural method of composition.

Opening Remarks

There is a long history of music being aligned with other endeavours (Dissanayake, 2000) including ritual and the assertion of identity. The economic imperative that has seen music (and indeed the other, allied arts) uncomfortably estranged from contemporary Western society in all but cultural theory (which is obscure to a significant proportion of the general population) has, despite this long association, given rise to a modular visual and performing arts industry that does not successfully “create mutuality” or facilitate “the passage [of] feeling into shared meaning” (Hughes, 1996). Dissanayake’s assertion that that the arts “originally occurred together” and were “experienced together – visually, aurally and kinetically” (Dissanayake, 2000) leads her to conclude that multi or cross modal art forms have a more “profound appeal and emotional effect”. Whilst multi-media forms exist in contemporary society (including cinema, rock concerts, *Gesamkunstwerk*), this paper, at its core, demonstrates similarities of processes (which happen to employ relevant technologies) across disciplines which, when combined in time and space, offer a heightened and more powerful viewing/listening experience. More specifically, music composition inspired by or related to visual arts is not uncommon. Examples of this relationship including Mussorgsky’s *Pictures From an Exhibition* (from where this paper derives its title), and lately Richard Barrett’s *Ne songe plus a fuir* (trans. *Dream no more, of fleeing*) after the Chilean surrealist Roberto Matta, and Roger Smalley’s *Diptych (Homage to Brian Blanchflower)*. The case study to be used is the work *ENKI (for flute, live electronics and digital audio)* and its visual partner the IDAA.

In order to approach the discussion of the musical work coherently, I have reordered the theme of the conference. Originally ‘SOUND-IMAGE-SPACE’, *ENKI* will be discussed in retrograde – as ‘SPACE-IMAGE-SOUND’.

Space

The IDAA exhibition was housed in the Academy Gallery, within the Academy of the Arts. The Academy Gallery comprises five distinct exhibition spaces, Gallery A, Gallery B, Gallery C, Gallery D and The Object Museum. The entire gallery space includes approximately 800 square metres of floor space, 400 metres of running white wall, a series of moveable walls that can be used to create discreet, inner gallery spaces, with a lighting system and gallery hanging walls that have been constructed with the ability to be able to display

artwork at any height, placement or positioning. The Academy Gallery has been built to cater for the variables of contemporary visual art: - paintings, sculpture, installation, multi-media, craft and design.



Academy Gallery, School of Visual & Performing Arts, University of Tasmania

The space chosen as the venue for both the musical performance and the mounting of the exhibition itself was the thoroughfare through the gallery space. As may be seen by the images above, the space is contained within a rectangular space, open at each narrow end, with a boardwalk approximately ten metres above the floor. It was upon these boardwalks that audio speakers were positioned, with the performers (that is, flautist and sound person controlling topophony and live electronics) placed on the overhanging platform/balcony mid-space. This allowed the acoustic sound, the effected sound and the digital audio to immerse the space in which the viewing population resided.

<

Image

The International Digital Arts Awards is a travelling exhibition curated by Steven Danzig, part of the creative team that goes by the name of International Digital Art. This organisation seeks to:

1. present the work of leading artists representing excellence in all digital styles;
2. encourage and support the development of work by artists who are pushing new boundaries both in theory and production by expanding current debates and ideas in contemporary art and culture;
3. present special exhibitions (both online and hard copy) including the International Digital Art Awards and a featured artists gallery;
4. to cross-promote and link with similar projects, organizations & people who will collectively unite in its dissemination of presenting quality work to a global community;
5. maintain the highest business standards of protocol and transparency;
6. encourage networking for artists to an international market.

(Danzig, 2001)

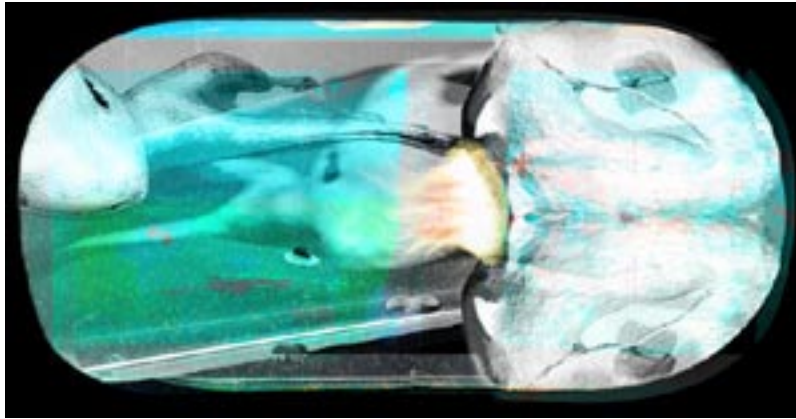
The 2004 exhibition that travelled to the Academy of the Arts Gallery in Launceston had a large range of digitally manipulated printmedia. Though the range was diverse, there was in evidence a similarity of concept and technique throughout the work. These included:

1. Organic evolutionary principles;
2. Parametric specific developments;
3. Distortion;
4. Transformation; and,
5. Making the familiar unfamiliar.

A number of these tenets may be seen in the accompanying images, drawn from the exhibition. International Digital Art were most kind in permitting the duplication and dissemination of these images for this conference paper.

The first two images are by Steven Danzig. Conceptually, they engage with technologically manipulated organisms (in this case shapes and figures that are humanoid, but whose image is digitally evolved to exist within a social, political and environmental context of a possible future). Whilst there is a familiarity to the shapes, they are made at the same time, unfamiliar through their juxtapositions with other life forms. There is also a sense of alienation in the work derived from the seemingly ascetic, quasi-laboratory conditions of the 'place'.

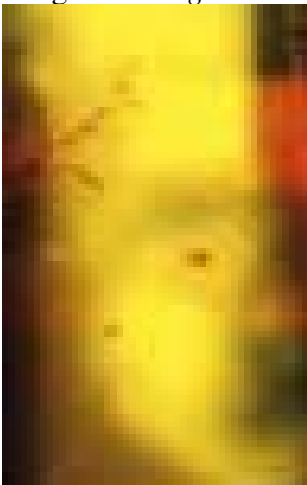




Images 1 & 2: *Anthropo-ecosophy* (Steven Danzig)

Similarly, the image by Albert Giros *Thoughts on Water* (Image 3) evokes textures, colours and is reminiscent of human form and substance, though stratified in its montage. In this work, there again exists recollections of organic life, with an emphasis upon colouration, or at least an emphasis upon a particular visual parameter chosen for development and transformation. There is also present an element of transparency that allows visual penetration to the lower layers.

Image 3: *Thoughts on Water* (Albert Giros)



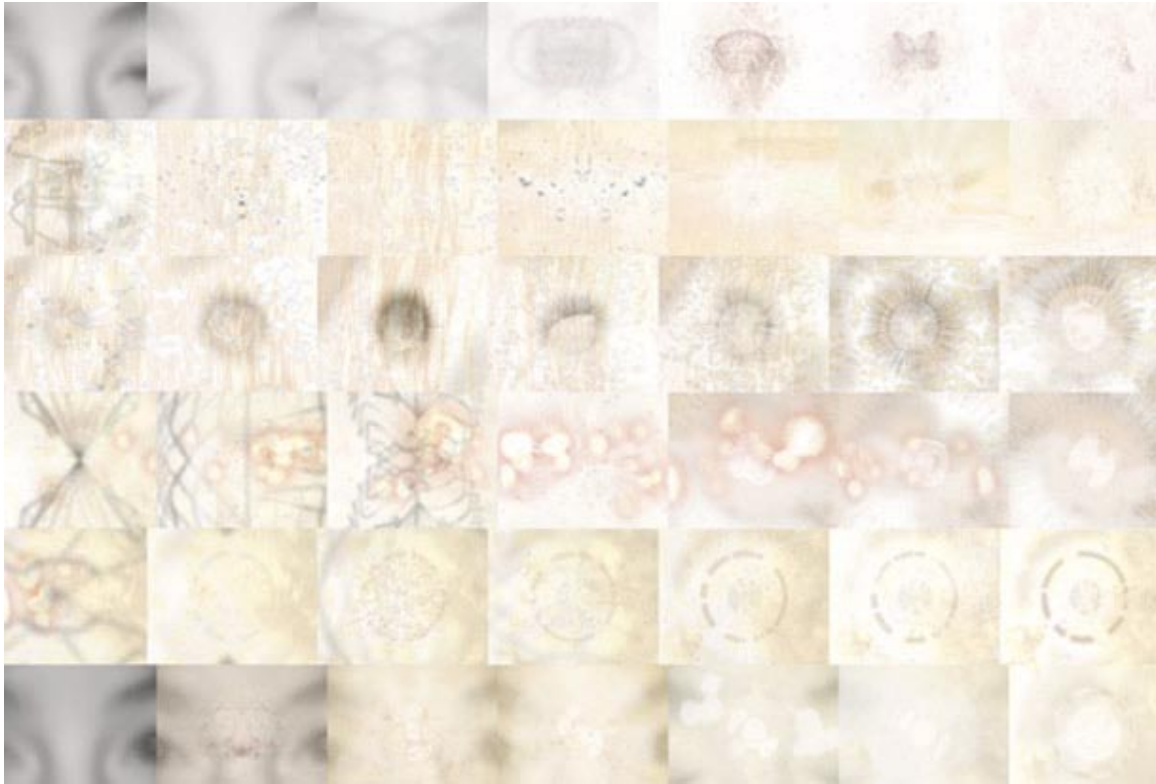


Image 4: *Quantum Dreamtime*, Anne-Maree Taranto

Anne-Maree Taranto's work (Image 4) has, hierarchically, a parametric edge to it. Entitled *Quantum Dreamtime*, the work evokes repetition and development of a central set of images and shapes. The parametric specific developments of the 42 discrete images make clear the composition's linear development. The work's power comes from its use of familiar images and their geometric transformation into other images of familiarity (albeit perhaps less familiar), and the formal structure that embrace repetition, segmentation, connectivity and transparency of development.

CageFor (Ruslanus Baranauskas) (Image 5) evinces some of the same tenets mentioned previously (organic hybridisation, parametric development) but is also a good example of visual distortion (in the lower portions of the image) that conceptually may imply movement, or non-solid matter, or light from a canal. The distortion of the image in this way removes the image from the realm of ordinary experience, and abets the concept of taking familiar elements and rendering them somewhat unfamiliar.

Jiri David's portraits of Tony Blair, George W. Bush, Kofi Annan and Jacques Shirac exemplify the power of simple visual transformation. Through the adjusting of the surface detail of the eyes, and the inclusion of tears, the meaning of the portraits undergoes significant change. Whilst this compositional transformation can be reduced to the parametric, the device is employed in a way that significantly alters the perception of the piece, or at least makes clear its conceptual driver. This perhaps contrasts with parametric change in some of the images for the sake of formalist development practices. There also may be some here who see the grieving, remorseful leaders used in David's set as familiar images made unfamiliar.



Image 5: *CageFor* (Ruslanus Baranauskas)

Images 6 & 7: *Blair, Bush* (Jiri David)

As one may reasonably imagine, there were a significant number of other works in the exhibition, but this selection successfully illustrates the point of departure for the compositional strategy. Concentrating on these five elements as drawn from the images within the exhibition (that is, organic evolutionary practice, parametric specific developments, distortion, transformation and the making of the familiar unfamiliar) decisions about direction, style and media of the composition began to be made. Initially an alternative view of the evolution of early humans as expounded by Rene Boulay in *Flying Serpents and Dragons: The Story of Mankind's Reptilian Past* was drawn upon. In this history, “man was created as an expedient to satisfy a group of discontented aliens. Man’s purpose was to serve the gods [of the Babylonian pantheon] ...to ease the burdens of the gods and to assume the laborious and distasteful tasks being performed by the...Annunna” (Boulay, 1997). In other words, man is a genetically engineered working drone. The chief engineer Enki and the chief nurse Ninhursag were briefed and commissioned to produce the first primitive man. This became the conceptual point of departure for the work.

Sound

ENKI was designed to incorporate elements of a fixed, broadcastable audio part with a live flute part modified in real time by live electronics. The digital audio part was comprised of numerous flute samples (C flute, bamboo flute, shakuhachi for example), modified wood sounds (tapping, clapsticks, marimba), sounds of metal (cymbals for example) and small excerpts from extant orchestral works of mine that embrace sounds of nature (*Cicada Dusk, Naracoopa*) and assembled and modified in Pro-Tools. These orchestral chunks ultimately manifested themselves in the digital audio part as spatialised repeated figures creating a larger macro-rhythm.

At the same time as the digital audio part was being broadcast, the flute part was performing from the score. The score produced for *ENKI* had some non –traditional elements contained within it, but was, overall, notated in a standard fashion. A combination of regular notation and boxes of text, the score contains within it, an analysis of the fundamental composition drivers that then form the parametric basis for instrumental improvisation. Simultaneously, the flute signal is passed through an effects unit and treated as raw material for improvisation by a sound designer or mixer. Thus the flute sound heard by the audience is comprised of the raw

acoustic sound and the treated, manipulated and spatialised sonorities of the amplified flute. Additionally, the flautist is at times required to produce sounds somewhat unfamiliar to traditional flute performance including tongue clicks, pops and lip kissing, as well as organic sounds (such as breath), and the evocation of key words ('ENKI', 'ANNUNAKI' [the race that developed primitive man] and TI.IT [Sumerian for 'life' and often mistranslated as 'rib']).

ENKI

A Fiercely... (1=55-65)

B Gesture A: Begin at any point in the gesture and play throughout, until the whole gestural phrase is complete. Improvise freely using the elements of the gesture: long notes decorated with *fla.*, short note/long note relationship, *shape*, articulations: *v*, *lyts*, *ya*, *vibrate*.

Move to gesture B at Bell Cymbal attacks: *ff*

B Gesture B: Sounds will be produced vocally for this gesture. Empty devices including breath intake, tongue-clicks, lip 'kissing' = 'popping', and other sounds that are suitable for amplification + effects (including *V* delays, flanges, reverb, (but not limited to) spatialisation + chorus). "ENKI" "ANNUNAKI" "TI.IT"

Move to gesture C after mesonade decay of universal stone flute analysis...

1.

Score Illustration 1: *ENKI*, Section A, Flute part.

In formal terms, the piece is in four sections. The first three sections of the flute part introduce important musical material, with the final section of the flute part acting as a bridge to a longer improvised section that amalgamates the musical material previously enunciated into a coherent whole. Acting as counterpoint to this is the fixed digital audio part which acts in several ways: as section delineators, as evidence of parametric specific development, as the primary definer of the spatialised listening environment and as the logical extension of performance techniques and repertory from the human to the machine. Interaction between these two component parts is mediated by the use of live electronics – the confusion that is expressed at the reception stage of the work by listeners (that is, determining what is played live by the flautist and what exists as part of the digital audio component) is entirely welcome.

The musical material used as the basis of *ENKI* is gestural in conception. That is, broad definitions of the types of musical material are arrived at through the interaction of defined musical parameters. Given that this gestural point of departure is integral to the methodology and strategy of composition, it seems prudent to investigate the concept of a gesturally based compositional model at this juncture.

Gestural Composition

In order to examine the role and development of gesture as a compositional framework, it is important to determine a workable definition of this term 'gesture'. 'Gesture' is perhaps the least immediately quantifiable musical parameter found in a composer's vocabulary. Whilst it is inextricably linked with the other more measurable parameters of pitch, tessitura, rhythm, performance media, tone colour, dynamic and articulation

(whose application may be quantified independently of one another), ‘gesture’ refers to the totality of the aural element conceived through the interaction and simultaneity of these disparate events. Gestural composition, whilst incorporating in its design the pre-composition machinations of each parameter, relies entirely upon the aural totality created through the interaction of the aforementioned elements, their development, and their context of meaning within the work as a whole, dependant upon its ‘organic context’ (that is, its position in a chain of events [as antecedent or consequent], its stratification or contiguous juxtaposition), or its ‘individual context’ as an “autonomous, absolute” moment (Stockhausen in Hasty, 1986).

Not being content with this successive or purely contextual nature of gesture, composers have expanded the concept of antecedent/consequent relationships, personifying musical gesticulation into a self-encompassing and self-fulfilling entity. Karlheinz Stockhausen argued that:

“...each now is not regarded untiringly
as a mere result of the immediately preceding one or as the
prelude of the one which is approaching...rather [it is] something personal,
autonomous...independent [and] absolute...”

(Stockhausen/Hasty, 1986)

Stockhausen expands, discussing how the perception of material presented as being of itself without relation to that which has transpired or that which is to follow creates a stillness, or impression of timelessness in the temporal flow¹. It follows, then, that the gesture requires examination regarding its context (as part of a larger form), itself (as a centred, autonomous entity) and the effect of its deployment pertaining to the aural perception of the passage of time or the progression of the work in question. Hence, ‘gesture’ is an entity constituted from substantively different component parts existing on several planes simultaneously: it may be perceived as the juxtaposition from events *before* to events *after*, or as a self-sufficient moment impervious to its wider context, preferring instead to concentrate on the “now moment” (or, indeed, both concurrently) (Stockhausen/Hasty, 1986).

Of itself, this definition is neither difficult to understand nor particularly taxing to deduce. What makes the defining process somewhat troublesome is its application. The linear succession of related events within music (for example, the unifying nature of pulse or the recognition of an audible harmonic scheme) does not present problems regarding the perception of continuity; however, when these related events are removed and replaced with contiguous, often apparently unrelated gestures, the perception of musical form changes as a result of the deficiency of predictability on the listener’s part and the subsequent reinforcing and heightening of the ‘now moment’ or ‘individual context’. As Christopher Hasty argues in his article *On the Problem of Succession and Continuity in Twentieth Century Music*, “...extreme contrast or the absence of predictability can negate temporal succession and thus create an absolute discontinuity. (Hasty, 1986). The question of gesture relates, then, not only to its context, but also to its role as a facilitator of unification or as the catalyst for discontinuity (Marek, 1981).

Errol Harris, writing about the perception of time in general, offers a reliable solution to the problem of disunity in music that is predominantly gestural. His writing, though not specific to music, may nonetheless be applied to it:

“[an entity]...must somehow preserve the earlier stages
as it progresses and amalgamate them within those subsequently appearing;
otherwise no structure or order comes to light. Single instantaneous events
present no order - even if they are not [ordered] but have internal complexity.
If each as it passes were totally obliterated, no order could ever emerge.
In some manner, therefore, for an order to be constituted, the earlier elements
must be retained sublate in the succeeding events.”

The ‘problem’ to solve, it would appear, lay in reconciling apparently disparate musical gestures without compromising development over a larger formal structure (that is, without constantly reverting to stratification and juxtaposition of different gestural types as the primary musical development). Edgard Varese’s *Integrales*, for example, employs a crystallisation technique which effectively fuses different gestures (or music materials) as subsequent gestures are presented; Stockhausen’s *Momente*, whilst devoted to the ‘now’, uses only a small number of gestures, concentrating instead upon their proximity to each other and their metamorphosis through the influence of other moments, whilst retaining some aspect of the integrity of the initial gesture in its pure form.

Gesture is the aural entity created by the interaction of the various musical parameters. These individual parameters exist simultaneously and inform different aspects of the resultant sound complex. Methods of development of a gesture may take the form of changes in one parameter that informs the aural entity, or numerous changes and developments across numerous musical parameters. In his doctoral paper entitled *Structural Functions of ‘Musical Gesture’ as Heard in Selected Instrumental Compositions of the Twentieth Century: A Graphic Analytic Method*, Richard Brooks defines the “...minimum definition of gesture [as] a single sound subjected to at least one parametric permutation” (Brooks, 1980). His qualification of the ‘minimum definition’ is that it is more likely that a number of parametric specific developments occur simultaneously in order to constitute the awareness of changes to (or indeed the existence of) an individually recognisable aural entity. As he concludes: “...any parametric alteration or permutation needs to be aurally more apparent to achieve gestural significance” (Brooks, 1980).

Whilst there are numerous examples of agreement between Brooks’ definition of gesture and my own, there are also a small number of divergences within the sphere of definitions. These limited anomalies may well be the result of the differing approaches that each writer adopts. Brooks’ paper is written, as the title suggests, from an analytic perspective principally concerned with the examination of composed music after the act of creation, whereas my research engages with gesture as a model of music creation - that is, the concept of gesture is applied at the pre-composition level in order to inform compositional praxis and facilitate development, whilst the Brooks’ dissertation examines gesture purely as an analytic construct whose purpose is to aid in the discussion and dissection of extant compositions.

Pitch occupies an important place in the analysis of western musics, as it is often considered by analysts as “the carrier of musical structure” (Brooks, 1980) and be the parameter which occupies a significant place in the development of musical style in the twentieth century in particular. This should not imply, however, that pitch development occupies a position of hierarchal primacy in terms of gestural development. From the gestural perspective, this is obviously not necessarily the case as aural and transformational procedures and developments can be enacted in any number of different parameters, either in isolation or in conjunction with one another.

Thus, the composite aural entity constituted of the various musical parameters may undergo development of itself in one parameter or numerous parameters simultaneously, or undergo a development that involves the ‘fusing’ with another defined gesture type. This ‘fusing’, or hybridisation (or cross-fertilisation) is the method through which the gestural model may inform the work, not only on the level of surface detail, but also on the macro-level.. The application of the gestural model at the pre-compositional level (that is, defining the idiosyncrasies and behaviour of the component gestures of a work at the outset of the act of composition) allows for the free and ready interchange of otherwise parametric specific transformational procedures to both other parameters within the same gesture, and other gestures within the same work constituting both gestural development through the application of the former, and hybridisation through the application of the latter.

Gestures in ENKI

The gestures that are used in *ENKI* are simply defined and easily aurally recognisable. They are presented in their most straightforward and ‘pure’ form in the flute part with aspects of the gesture amplified in the digital audio part. In *ENKI*, the gestures are defined as:

| | GESTURE A | GESTURE B | GESTURE C |
|----------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Pitch | Outlines A Dorian. Expands upon semitone interval. | Non-pitch oriented. | Whole tone. Reminiscent interval of semitone (final notated interval). |
| Rhythm | Short note/long note relationship. | Not stipulated. | Long notes as group Short notes as a group. |
| Non pitch/ rhythm elements | <i>Flz.</i> , articulations stipulated, <i>crescendo</i> from <i>dal niente</i> stipulated | Vocally produced. Breath, popping, tongue effects. Text based. | Percussive clicks. Splitting of notes. Breath tone, <i>senza vib.</i> , pitch bending. |
| Tessitura | Low - Mid register, consistent registral placement. | Not stipulated | Low – Mid register with pointillist style improvisation. |

Examination of these basic gestural components makes several aspects clear. Firstly, the differences between these ‘pure’ component gestures are significant enough to be readily recognisable even if not acquainted with the gestural definitions before listening; and, secondly, that linkages exist (in a transformative sense) between the gestures such that elements of earlier gestures are to be found sublimated in later gestures (and *vice versa*). The final section combines all of the materials of all the gestures into an increasingly frantic, gesturally coherent improvisation. The definition of the non-pitch/rhythm elements is perhaps slightly disingenuous, given the importance of these sound events within *ENKI*. Such base discussion and definition is used simply to facilitate brief discussion, not to represent parametric hierarchy in the work.

ENKI is organised such that it considers the five basic principles extracted from the visual components of the IDAA exhibition. The choice of the gestural model of composition (which itself is based on the famous Mendel genetics experiments with peas) (Sudmalis, 2001) is aurally both organic and evolutionary as one statement of a gesture type is referred to in later gesture types (or indeed, fundamentally opposed at the definition stage in a far more violent form of evolution). Developments of specific parameters as related within the gesture happen frequently and are most often found in the intersection of flute and digital audio part. The pitch bending inflection of the gesture C, for example, is prefaced with a long, microtonal flute-sample amalgam in the digital audio part, and the short note/long note relationship evident in gesture A forms the basis for not only the audible material in the complementary fixed audio part at the time, but also for the relationship of sound and silence in the digital audio part.

The sense of distortion evoked in the work is not one relating to resultant sound through effects (though this possibility exists in live performance), but more to the reception of the work - as to what is being performed live and what is not - in addition to the more obvious sense of sonically manipulating materials so as to render them unrecognisable (or indeed, unfamiliar). Transformative processes are evident in the definition of gestural types, and their evolution through time in terms of any compositional and/or parametric construct. Spatialisation and live electronics play a significant part in this process, whereby the directionality of the sound significantly alters the perception and reception of the sound event. Through the interaction of these tenets (especially distortion and transformation, and the use of non-standard playing techniques as defined in the ‘pure’ gesture) the familiar sound of the flute becomes increasingly unfamiliar, thus serving as a sonic counterpoint to the images within the exhibition.

Aspects of Performance

Whilst the components of the flute improvisation are invariably very clear (due to their description on the score), it is the performance relationship between the instrumentalist and the sound designer/projectionist/engineer that is the source of great vitality in *ENKI*. Both performers are improvising, however their co-dependent real-time improvisation is not limited to the immediate. Through the choice of effect(s), the engineer can (and does) suggest, within the limits of the gesture, particular types of improvised material. Naturally enough, the flautist responds and suggests something to the engineer. The complementary musical dialogue that results strikes at the heart of electro-acoustic music criticism – the familiar condemnation of electro-acoustic music as being unfeeling, machine music is easily debunked. The relationship that exists between the flautist and the engineer in a performance of *ENKI* is perhaps more intimate than other co-dependent improvisations given the fruits of their collaboration transcend immediate time in live performance.

Further Research and Possibilities

The gestural model of composition as it can exist within music technology creativity is a highly useful and motivating pedagogy tool (for both composition and technology). It transcends performing media and parametric specifics in its genesis, yet engages with in parametric specific development during compositional expansion. Furthermore, the model's pre-occupation with sound and its relationship either to other sounds or the moment allows composers, performers and other creators to use the technology creatively and as a tool of composition rather than becoming a slave to it (for further discussion on this point, please see my paper *Between Duchamp And Turing: Strategies For Linkage Between The Visual And The Auditive In Audio-Visual Art* [Sudmalis, 2004]).

ca. 10"

Pointillist style - with extreme registers + extreme dynamics. All attacks staccatissimo... *f*

fff possible

Gesture C: Execute gesture C from the beginning → end. After completion of the gesture, improvise freely on the materials contained therein: long note without vibrato, key clicks with air, pitch inflections (ie bending ↑ ↓ during last moments of note), + pointillist style performance.

Move to gesture D at minimalist, machine-like music...

ca. 10"

mp *f* *fff*

Allow note to split & crack

then →

Improvise freely for ca. 40" on all gesture materials, the improvisation becoming increasingly frantic with contiguous juxtaposition of materials.

(ca. 3-5")

seca vibrato

Completed 20-05-04, Amsterdam, Yerevan.

Score Illustration 2: *ENKI*, flute part, end of Section C & Section D.

Another strength of this particular strategy is the potential for it to link with other allied art forms in cross-disciplinary collaborative works. The technological component can be compositional tool, performer or mediator in this cultural exchange with the significant outcome of greater repertoire (in both quality and quantity), performance and composition opportunities, dissemination and musical evolution.

References

Boulay, Rene 1997 *Flying Serpents and Dragons: The Story of Mankind's Reptilian Past*, The Book Tree, California

Brooks, Richard 1980 *Structural Functions of 'Musical Gesture' as Heard in Selected Instrumental Compositions of the Twentieth Century: A Graphic Analytic Method*, UMI, Ann Arbor.

Dissanayake, Ellen 2000 *Art and Intimacy: How the Arts Began*, University of Washington Press, Washington

Harris, Errol 1965 *The Foundations Of Metaphysics In Science* Allen & Unwin, Chicago

Hasty, Christopher On the Problem of Succession and Continuity in Twentieth Century Music *Music Theory Spectrum*, 1986:8

Hughes, Robert 1996 On Art, *New Yorker*, 27 May 1996

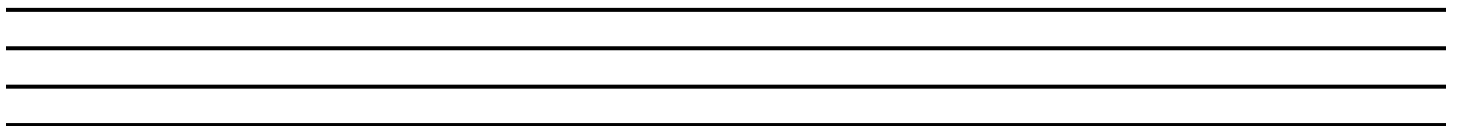
International Digital Art 2004, *International Digital Art*, www.internationaldigitalart.com

Marek, Zdanek The Perception of a Musical Work from the Aspect of Anticipation of the Further Course of the Succession of Sounds *Council for Research in Music Education* #66-7, Spring, 1981

School of Visual & Performing Arts 2004 *Academy Gallery* www.utas.edu.au

Sudmalis, David 2004 Between Duchamp And Turing: Strategies For Linkage Between The Visual And The Auditive In Audio-Visual Art, presented at *Imaging Nature: An Interdisciplinary Conference*, Hobart

Sudmalis, David 2001: *Gesture in Composition: A Model of Composition Involving Gesture, Gestural and Parametric Development, and Hybridisation as Examined in Six Original Compositions*, Unpublished PhD thesis, Sydney Conservatorium of Music/University of Sydney.



Address for Correspondence

Dr David Sudmalis
Head of Music
School Research Co-ordinator
School of Visual and Performing Arts
University of Tasmania
Locked Bag 1-362
Launceston, Tasmania
Australia
David.Sudmalis@utas.edu.au

Ph +61 3 6324 3555

(Footnotes)

¹ Stockhausen calls this phenomenon 'eternity'.