

Virtuoso Audiovisual Realtime Performance

Andreas Weixler

Art University Linz; Interface Culture, Institute of Media

Atelier Avant Austria, Composition & Media Arts

Bruckner-University, Institute of Composition and Institute of Jazz and Improvised Music

andreas.weixler@ufg.ac.at; a.weixler@bruckneruni.at

Se-Lien Chuang

Atelier Avant Austria

Composition & Media Arts

cse-lien@sime.com

Introduction

Fragments of memories produced both by human beings and by computer generate a synaesthesia of sounds and visuals. The sound of live instruments serves as an interface in an audiovisual interactive concert that merges acoustic instrumental sound and realtime computing into an improvisation. With the combination of intuitive improvisation and realtime computing, we want to create a synaesthetical artwork in which all audio and visual parts contribute equally. While visual images and processes are being generated during the concert, a multichannel granular synthesis stitches together minute tonal particles that make up the instrumental sounds into a constantly changing acoustic stream made up of different pitches, durations and positions in the electro-acoustic space. The musical and visual components interact and reciprocally influence each other in order to blend into a unique, synaesthetic, improvisational work of art.

As different forms of machine musicianship are blooming nowadays, we are focusing on a very specialized form of realtime performance with a computer system: virtuoso audiovisual interaction with musical instruments. In this article we describe the development of our own audiovisual realtime computer system and document performances with different kinds of musical instruments. The goals of this project are to create an interface for visual and music computing for an associated audiovisual composition and to create a performance of equal participation of sounds and visuals.

Computer — The Hyper Instrument

The software system created in Max/MSP/Jitter consists of a pitch and dynamic detection, realtime visual processes and a live multichannel granular synthesis with special controlling and performing methods



Figure 1: Graphics in *The Colours Of A Wooden Flute*

while the musical instruments are played in the style of contemporary composition/improvisation. All computing devices, the audio detection, the visual and the audio processing are linked via a wireless LAN to influence each other reciprocally.

The multichannel granular synthesis processes the instrumental sound in realtime, spreading its sound on an eight channel sound system, rearranging those in terms of pitch, time, order, playback direction and position within the acoustic environment. For the visual processing we developed a patch in Max/Jitter called *ModularFilter*. It either takes a live video input, for example the performer, or some prepared pictures and movies as a source for further visual processing.

There was always a desire to stimulate the brain by a combination of audio and visual effects: for example, the light of coloured glass in the strong acoustic of churches, light organs, simply hooked up by frequency response, in the disco music era up to today's high-tech audiovisual shows of popular music events, and countless more examples of contemporary artwork.^{1,2}

Our approach reflects the same desire of making sound visible and visuals audible, but differs from the approaches described above in following issues: to make sounds and visuals of equal importance in a performance, to create a virtuoso associated audiovisual composition/improvisation in an electro-acoustic space and to play the computer as a hyper music instrument.

The interaction is multiple: Three modules of our computer system, the audio analysis, the multichannel granular sound synthesis and the interactive visuals, interact with the performers, who are an acoustic musical instrumental player and the electro-acoustic hyper instrument player. The computing system is exchanging data between analysis, audio and video computing for a two-way digital communication. The mapping of this data, of course, is an important decision made by the artists. Last but not least, there is interaction happening between the musician and the granular synthesis performer: as usual in a musical improvisation, the musician and granular synthesis performer react to each other's sounds and both to the computer aided creation of the visuals.

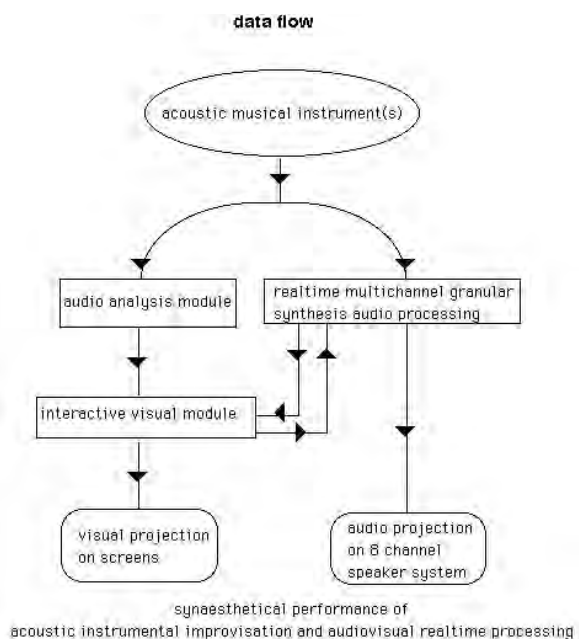


Figure 2: The overview of the data flow

Musical instrument as interface

The acoustic musical instrument is not only acting as a musical instrument, but also as an interface for the computing system. We performed with different musicians with modern western instruments as well as Japanese, Korean and Chinese traditional instruments.

The acoustic musical instrument is controlling the creation of the visuals in realtime and the instrumental sound will feed the granular synthesis distributed on eight channels depending on the live performance. In our experience also the architecture of the concert hall or the performance space has a strong influence on the sound and interaction, as the loudspeaker tends to feed the processed sound again into system through the microphones, which we sometimes emphasize as a special effect.

We used various instruments as audio input and controlling devices in performances worldwide: The audiovisual realtime performance *The Colours Of A Wooden Flute* is performed by a bass recorder, which is

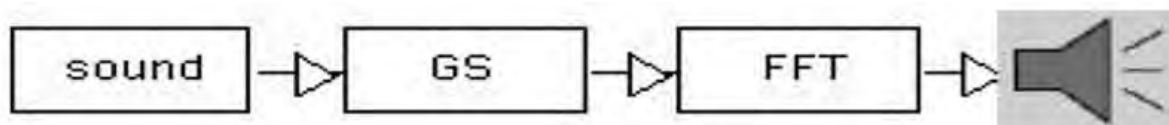


Figure 3: One channel realtime audio processing with FFT filter after granular synthesis

a wooden flute with a very low register and a smooth sound, using contemporary playing techniques like multiphonics. We use an arco-piano and our audiovisual interactive computer system in the improvisational performance *Interlude for Pi and for Io*. Arco-piano is a special contemporary technique of performing the piano with hairs of bows, which gives a very sophisticated sound of the piano. As these instrumental sounds naturally have a very long sustain we implemented a dynamic threshold system to avoid multiple triggering. In marked contrast to this we performed with a yangqin, a traditional Chinese hammered dulcimer with a near-squared soundboard, which has strong attacks and a short sustain. Together with our computer system it represents the performance of *Erinnerung in jedem Laut*.

Conclusions and Outlook

We have already combined the multichannel granular synthesis with other filter functions. For example with the utilization of FFT filter (Fast Fourier Transformation) after the multichannel granular synthesis we can approach very delicate accentuating effects i.e. some specific frequency will be punctuated and some will be softened, especially as these effects are moving differently in all eight channels.

Currently we are working on extending the system for a chamber ensemble or a group of instruments. We plan to separate the granular synthesis as well as the analysis functions and link the parameters of individual instruments to form a complex visual response to a live audio event.

Recently we introduced an interactive score that will conduct the ensemble.

We also hope to develop a system in which the visual events cause reasonable audio responses, to achieve equality of both the audio and the video domain.

1 Chion, Michel. 1994. *Audio-Vision, Sound on Screen*. New York: Columbia University Press.

2 Centre Pompidou. 2004. *Sons & Lumières*, Une histoire du son dans l'art du XXe siècle, catalogue of the exhibition im Centre Pompidou.

URL: Atelier Avant Austria, <http://avant.mur.at>

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Serious Play: Counter-actions and Interventional Dissent in the Game Space

Laetitia Wilson
laetitia.wilson@uwa.edu.au

For some time now, the art-world and the video-games industry have occupied distinct spheres with a level of mutual antagonism. In 1982 Chris Crawford made the ambitious prediction that, “Eventually, games will be recognised as a serious art form.”¹ Over the last decade the distinction has indeed been dislodged. Gaming is not only gaining greater credibility in and off itself, it is also becoming a site and medium for artistic practices and new forms of political art. Political art interventions within pre-existing game spaces often employ subversive tactics, what I call *counter-actions*; “To act in opposition to; to hinder, defeat or frustrate, by contrary agency or in unce,”² to subvert through inversion. Counter-actions break with previous actions; they disrupt a previous understanding; they work literally *counter* to the play action. The play time and space of pretence becomes pierced by an element of the external world; an element which is not complicit with the legitimate state of play. As a result, when art enters the game-space as a political interloper it does not receive a warm reception. In Crawford’s prediction, the term ‘serious’ butts against the assumed playfulness of play and through these counter-actions it is here argued that seriousness is reaffirmed in alliance with play to realise the concept of ‘serious play’.

Velvet Strike: Counter Military Graffiti for CS (2002), by Anne-Marie Schleiner, Joan Leandre and Brody Condon and; *Dead-in-Iraq* (2006), by Josephe DeLappe are such counter-actions. Both respond to the war on terror and contravene the propagandistic nature of military simulation games. Both involve players entering a game space with intent contrary to the play action. In *Velvet Strike* players are enabled to spray graffiti tags of counter-military messages onto the various environments of *Counter-Strike*. In *Dead-in-Iraq* DeLappe enters the streets of *Americas Army* as a ‘neutral visitor’. With the user name ‘Dead-in-Iraq’ he takes on a counter-active stance of stillness — a sitting duck — in a space of action. He then appropriates the messaging function to type the name, age, service branch and death date of the entire service personnel who have died in Iraq to date.

In both projects these actions have a predominantly negative effect on the majority of gamers.³ The last thing many gamers want to see garnishing their game-scape is the slogan ‘Hostages in Military Fantasy’. Their irritation is evidenced in the amusing reactions; “what you’re telling people to do will ruin the ‘experience’ for all who play and pay for the game,”⁴ framing the *Velvet Strike* team, with their dissident tags, as agent provocateurs. Social commentary is an unwanted stranger to the play and for *Dead-in-Iraq* the player responses also testify; “Dead-in-Iraq shut the **** up!” and; “Why should we care if an American or two dies.”⁵ The *Velvet Strike* tags act as offensive visual pollution and *Dead-in-Iraq* is the unwanted town crier to a population who refuses to hear the news. The recruitment strategies of *Americas Army* are more easily absorbed than a political statement from a player refusing to concede to the underlying rules of the game (this is a negative alliance). Such a player is a spoilsport and treated as such — with as much disdain and/or disgust. He is repeatedly shot and his perpetual reincarnation — like the structural repetition of trauma itself, stands in stark contrast to the reality of death which he is calling attention to. These counter-actions threaten the ‘sense of carefree pleasure’, inconsequentiality and freedom from moral responsibility, by the inclusion of content which runs in a contrary direction to the immediacy and continuity of the gameplay (serious play). *Velvet Strike* is a reference to the 1989 ‘Velvet Revolution’ in Czechoslovakia; in which the communist government was peacefully overthrown. The point of this project and *Dead-in-Iraq* is not so much to ‘overthrow’ the genre, but to gently intervene and surreptitiously subvert the ideologies of virtual combat and their increasing convergence with realism.

Counter-actions establish the game-space as a public arena that holds the potential for alternate meanings to be generated. In this case they draw attention to a global climate of increased militarism hinging on the war on terror. Through such strategies a glitch occurs in the continuous space-time of the game that jolts the player

to a zone unfamiliar to that of play. In optimal terms this 'zone' is a 'think-space', as described by Lee Shuen-shing.⁶ However, even though the already converted nod in approval, thought may be negated — as players curse in anger. While the tags of *Velvet Strike* and memoir of Delappe ferment discontent and accusations of 'ruin', they endeavour to act as a deconstruction of the fantasies at play within the militaristic context. To an extent they succeed, they turn the medium upon itself, holding a mirror up to its ideological aspects and all-too-real pretence. Their actions draw the art and game spaces closer together despite the critical risk of the alienation of the indigenous data-inhabitants. Tiffany Holmes argues that the art game "challenges cultural stereotypes, offers meaningful social or historical critique, or tells

a story in a novel manner."⁷ Counter-actions such as *Velvet Strike* and *Dead-in-Iraq* focus on the former of these capabilities; mobilising seriousness in play to enable alternate and most significantly dissident voices to be heard within *Americas Army* and *Counter-Strike*. In such projects space is created for the emergence of a difference within the repetition, homogeneity and precession of stereotypes characteristic of the majority out-put. They comprise a valuable counter-aesthetic to the dominant ideological drive of the mass-market gaming industry. Successful or not, they provide an antidote to this ideology, as well as an alternate means of communicating serious issues and provoking thought and debate at the nexus between the real-world and the language of play.

- 1 Crawford, Chris. 1982. *The Art of Computer Game Design*. <http://www.vancouver.wsu.edu/fac/peabody/game-book/Chapter7.html#The%20Flowering%20of>
- 2 Porter, Noah (ed). 1913. *Webster's Revised Unabridged Dictionary*. "counteract". <http://dictionary.reference.com/browse/counteract>
- 3 While contemporary art curators are pleased.
- 4 Anon. *Flamer Gallery*. <http://www.opensocery.net/velvet-strike/mailgallery.html>
- 5 Screenshots. *Dead in Iraq*; http://www.unr.edu/art/DELAPPE/Gaming/Dead_In_Iraq/dead_in_iraq%20JPEGs.html
- 6 Shuen-shing, Lee. Dec 2003. "I Lose, Therefore I Think: A Search for Contemplation amid Wars of Push-Button Glare." In *Game Studies: the International Journal of Computer Game Research* 3 (2). <http://www.gamestudies.org/0302/lee/>
- 7 Holmes Tiffany. 2003. "Arcade Classics Spawn Art? Current Trends in the Art Game Genre." In *Proceedings of the 5th International Digital Arts and Culture Conference*. Melbourne: RMIT University, p.59.

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- Velvet Strike* website; <http://www.opensocery.net/velvet-strike/recipes.html>