The DishJockey:
Integrating Multimedia into Everyday Activities

Johan Redström
Viktoria Research Institute and
Dept. of Philosophy, Gothenburg University
Box 620, S-405 30 Gothenburg, Sweden
johan@informatics.gu.se

1. ABSTRACT

When exploring the possibilities with computer based multimedia, the user interface is central. The ideas proposed here suggest that we can find new ways of interacting with digital media by exploring the affordances of everyday things and activities. Using multimedia and novel interfaces, we can find ways of augmenting the affordances of everyday activities, in order to make them more entertaining. An example –a thought experiment called the DishJockey- is discussed.

1.1 Keywords

Entertainment, multimedia, augmented reality, affordances.

2. INTRODUCTION

Multimedia is in the present context most often thought of as a computer controlled, highly interactive application that makes use of several perceptual modes or ways of presenting information. A personal computer is a very general tool that can be used in a broad range of applications, but when it comes to interaction with users, the possibilities are far more limited. At least some of the problems with developing innovative use of digital media have to do with the limitations provided by the desktop computer, and the solution probably lies in moving away from traditional interfaces towards novel ones. The question is, where do we find them?

3. DIGITAL MEDIA AND REALITY

The ideas presented here starts with the exploration of everyday things and activities, and the aim is to use their affordances as a basis for interaction with computer based multimedia systems. There are at least two major approaches to the merging of the ordinary and the digital world. Augmented reality uses projection of information on the ordinary world, in order to enhance experience or the amount of information available [3]. Ubiquitous computing on the other hand, aims at making computers invisible to the user, by means of incorporating them into tools and other physical things that we use [6]. The research done on ambient media is related to both augmented reality and ubiquitous computing [2].

Most proposals and theories in these areas of research are about what to do with the digital world in order to make computers less obtrusive. The ideas presented below represents in some respects an opposite perspective: what to do with ordinary objects and activities in order to make them more fun and entertaining.

4. USING ACTIVITIES AS INTERFACES

A lot of work has been done on enhancing artistic performance using digital media. By placing sensors, transducers etc. on the actors, it is possible to let their actions control a computer based multimedia system [4, 5]. This can of course be done with any activity, but there are some differences between artistic performance and daily-life activities. The use of expressive body language in artistic performance is quite different from that in ordinary behaviour, where we tend to minimise effort. Besides, artistic forms of expression like contemporary ballet is not much tied up to using specific gestures and movements and can therefore more easily adapt to new demands due to controlling a computer.

Most activities can be made more entertaining by for example exaggerating them, but usually we do not alter them for the sake of our own amusement. We probably do not want to alter our behaviour too much, just because a computer based system requires it. If we still would like to use everyday activities to control multimedia applications, we might have to explore their affordances.

5. BEING A DISHJOCKEY

Though not yet implemented, it might be useful to give an example in order to explain these ideas further: the DishJockey. Usually, cleaning up the kitchen is an activity enjoyed by but a few persons, but imagine this: You start with saying “Salsa!” to the sink. Moreover, as you pick up a plate and start cleaning it with the brush, you hear a chord played on a guitar, just like if you were strumming a guitar instead of cleaning a plate. You start stepping with your feet and a basic salsa beat appears. You scrub the plate in a groovy fashion you like, and when you rinse it and put it in the plate rack (“play track”) the "guitar" keeps playing. Now you pick up a glass and start to brush it, and there you have the shaker! As the dishing goes along you are adding element after element to a song, and if you are not satisfied with the melody, groove etc. of a certain instrument, you just take it from the plate rack and scrub it again. All of this might be accompanied by changing lights, animations on a wall or whatever you like, creating a feeling of a creative artistic performance rather than doing a monotonous everyday-life activity.

5.1 The Affordances of Dishing

This example bears on several natural affordances associated with dishing. First, there is the rhythmical activity of using a brush to scrub something. This is in fact used in a traditional musical context as well, for example brushes used on the snare drum in jazz, and the brush and washboard used in folk music. Most pieces of music consist of parts. These parts can be mapped on the different objects that are to be dished, and as you clean up more and more of the dishes, more and more of the final song will be heard. This creates a natural goal for the exploration of a piece of music, using otherwise rather uninteresting objects.

Further, holding a brush in the one hand and a plate in the other is not entirely unlike playing for example the cello with a bow. However, we cannot expect the person dishing to be as skilled with the brush and plate as a musician with an instrument, which means we have develop different ways of controlling digital media. For example, if the person dishing is into classical music, one could easily imagine the dish session as a step by step recovery of a recording of, say, Beethoven's 5th symphony: the first plate representing the double bass, the second the cello etc. As you scrub the plate you recover more and more of the part in the score represented by the plate, so that when the plate is clean the entire part can be heard when the plate is put in the plate rack.

Depending on user interests and skill, it is possible to use this kind of interaction to recover an already existing piece of music, to create an entirely new song or anything in between. When the user chooses a particular style or song, the computer system “knows” what sounds to use and how to interpret the information obtained in order to make the result as musical as possible (cf. the different types of quantization in a MIDI sequencer).

6. CONCLUSIONS

What can we learn from this imaginary DishJockey example? First of all, that there are many "interfaces" around that are not currently used for this purpose, but that certainly could afford it. By exploring the affordances of everyday objects and activities, we can find natural ways of interacting with digital media and, therefore, get richer experiences than what would be the case with traditional desktop computers. Secondly, it is possible to augment these basic affordances using multimedia to achieve more interesting and enjoyable tasks. Not only artistic performance as such can be used to control multimedia applications, but daily-life activities too could serve this purpose. The theory of affordances [1] might prove useful when searching for these ‘hidden’ interfaces. The next generation of user interface metaphors might not only take common activities and objects as their sources, but also use them in their original physical, though in some ways augmented, form.

7. ACKNOWLEDGEMENTS

I would like to thank Lars Erik Holmquist, and the organisers of and participators in the “Future of Fun” workshop held at the Viktoria Research Institute in Gothenburg this spring.

8. REFERENCES

[1] Gibson, James J. (1979/1986). *The Ecological Approach to Visual Perception*. London: Lawrence Erlbaum Associates.

[2] Ishii, Hiroshi et al. (1998). ambientROOM: Integrating Ambient Media with Architectural Space. In: *Summary of CHI ’98*, p. 173-174. New York: ACM Press.

[3] Mynatt, E. D., Back, M. & Want, R. (1998). Designing Audio Aura. In: *Proceedings of CHI ’98*, p. 566-573. New York: ACM Press.

[4] Paradiso, J. A. & Hu, E. (1997). Expressive Footwear for Computer-Augmented Dance Performance. In: *Proceedings of ISWC ’97*. IEEE (http://computer.org/conferen/proceed/8192/8192toc.htm 1998-05-28)

[5] Sparacino, F., Pentland, A. & Davenport, G. (1997). Wearable Performance. In: *Proceedings of ISWC ’97*. IEEE (http://computer.org/conferen/proceed/8192/8192toc.htm 1998-05-28)

[6] Weisser, Mark (1995). *Designing Calm Technology*. (http://www.ubiq.com/hypertext/weiser/calmtech/calmtech.htm 1998-05-28)