Screen as site of interdisciplinary research: body coded in motion

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Abstract

My intention in this text is to identify and visually explore the potentials of intersection between art, technology and science, in order to create a creative setting that allows the observer to influence and interact with technical elements in a direct, immediate way.

1 Introduction

We live in an era where human motion becomes accelerated by technology and the points of stopping, looking, observing are rare commodities. Nowadays “new technologies become extensions of the human body and as such influence its identity.” Human interaction with technology is an important area of study in an age of ubiquitous digital technology, for new media studies as well as for performance studies. Interdisciplinarity is crucial, although their perspectives diverge.

My research is focused on exploring integration of body-centered performance practices with motion tracking software. Few theories and artist explore the interdisciplinarity of technologically mediated motion engagement in the production of embodied being. Focusing on motion, I
will try to tease out some of the complexities and the possibilities of how interdisciplinary research might be best performed.

2 Screen as site

“I see display screens everywhere, and I wonder whether they are happy. Happy? Well, maybe ‘happy’ is not the right word. Instead, ‘Do they live meaningful lives?’ may be the question to ask. “(Maeda:2004)

Building upon the fluidity and multiplicity of the screen as a medium that is surrounding us, our most powerful relationship with certain sites is more often mediated by the screen. There are various ways in which screen configure, affect, mediate and/or embody social relations. Reflecting and drawing on the work of Alan Kay, Myron Kruger, John Maeda, Ben Fry and Casey Reas this paper will try to demonstrate how an anthropocentric conception of the world is increasingly shaping and influencing the outcomes of the HCI (Human Computer Interaction). Special attention will be drawn on interdisciplinary art works that are using social-constructionist approach that centers on human beings, who, “in conjunction with technology, form a dynamic system with diverse feedback options”.

The pioneer in the field of embodied aesthetics of new media, Myron Krueger believes that the computer is always a vehicle for exploring and expanding embodied (human) interaction with the world and with other human beings. In his most acclaimed piece Videoplace, he places human embodiment in a position “to constrain the referencelessness of digital code, thereby installing it as the agent whose action actualizes the (abstract) potential of code.” (Hansen, 2006). In this way Krueger is introducing new approach in which “the computer system’s role as interaction partner fades into the background, and it now makes itself available as an instrument for the visitor to use.” (Dinkla, 2006). Krueger tackled the important issue on how the human motion can be used as a signal for the computer to produce output and how this process is transcribed onto the computer screen through the use of the programming languages.
Casey Reas and Ben Fray, the creators of the Processing, are working from the premises that “a computer machine and a computer program can be whatever a programmer wants it to be” (Simon, 2004) and for that reason “possibility exists to create new paradigm of computer programming that build on humankind’s inherent visual and bodily perception skills.” (Reas, 2004). Processing is an open source programming language and environment designed to bridge the gap between programming and art, empowering anyone to produce creations by using mathematical patterns. Processing opens up endless possibilities for creation of hybrid media projects that expand our corporeal approaches to computational systems and environments. In a historical sense, Alan Kay, a pioneer at Xerox PARC and Apple, explains how important software literacy is:

The ability to ‘read’ a medium means you can access materials and tools created by others. The ability to ‘write’ in a medium means you can generate materials and tools for other. You must have both to be literate. In print writing, the tools you generate are rhetorical; they demonstrate and convince. In computer writing, the tools you generate are processes; they stimulate and decide.  

3 Body, screen, motion

The contemporary focus on motion in a range of technologies and applications has not increased the importance of sensory engagement so much as made it more apparent, and it is the task of scholars, as much as of artists, to understand the nature and significance (individual, cultural, social, political) of this engagement. If we focus our attention toward interactivity, the only way the “audiences might start caring for (new media) art […] is when they’re given reason to. Seeing their own images, their own realities, lives and experiences is, perhaps, one key element in helping people care about art in the information age.” As argued by Janez Strehovec:
Today we come across new media art projects as post-industrial art services that occur at the intersection of contemporary art, new economy, post-political politics (activism, hacktivism), technosciences and techno lifestyles. The artwork is not a stable object anymore, it is a process, an artistic software, an experience, a service devoted to solving a particular (cultural and non-cultural) problem, a research, an interface which demands from its user also the ability for associative selection, algorithmic (logical) thinking and for procedures pertaining to DJ and VJ culture, such as mixing, cutting, sampling and recombination.5

In the wide terrain of multimedia performance work, which can be defined as performance that creatively utilises media technologies as an integral component, mixed-reality works that are incorporating the human body lie somewhere in between the domain of virtual theatre and postdramatic theatre as identified by Hans Thies Lehmann. This includes performances where media technologies are brought into the theatrical frame as a feature of the mise en scene (Kliche, 2007).

In the piece *trajets*, Susan Kozel and Gretchen Schiller are looking at the physical bodies of the audience as they wander through a forest of screens, and also the bodies of dancers as these are dissolved and re-corporealised through video capture, editing, and projection techniques. Visitor location causes the video projections to respond, effectively creating a visual-physical choreography across people, screens and images. The screens in *trajets* do not separate the subject of the visitor’s movement experience from its representation, but instead seek to develop a participatory dynamic which continuously maps and renders present movement perception between the participant and the given feedback experience. As described by Kozel:

The locus of the performance in *trajets* is shifted from the specific bodies of the performer (dancer, actor, musician) to the distributed bodies of the screens, image-bodies and public.6

**trajets** reduces the gap between action and representation. The screen is not only a projection surface, but also a dynamic participant in the performance. **trajets** strives to conceptually get at the interdisciplinarity
that blends theory with practice, to link theory and practice, not as
distinct and divergent domains, but as epistemologically interdependent
in the emergent field of digital performance studies.

Digital media, now applied in the contexts of performance art, may be
said to represent a break with the respective traditions, production
practice and theoretical frameworks, e.g. liveness vs. mediatised
performance. To adapt knowledge and methods of diverse fields such as,
media studies and performing arts become a question of not only
merged conceptual frameworks, but merged methods and aims, in this
instance, of theoretical reflection.

4 Display movement: methodology and theoretical framework

Since 2005 I am researching how the motion can be used as a signal for
the computer to produce output. My main inspiration was the
photographical work of Edward Muybridge (motion studies of the 1880s)
who believed in the special power of photographs to convince viewers in
counterfeit motion. Muybridge used fast-shutter speeds to break action
into moment-by-moment increments, rendering movement stationary.
For animators and other artists, the images he captured in the numerous
sessions remain a standard reference, a dictionary of movement. The
other point of interest, was the divide between the live and the virtual in
the performance discourse. This was a topic for a debate concerning live
theatre and mediatised performance, initiated by the differing
While Phelan asserts the authenticity of live performance, arguing that
performance is non-reproducible, Auslander critiques the concept of
liveness arguing that it exists as a result of mediatisation. This ongoing
dialogue has established an assumed opposition of the live and virtual
within performance studies (Klich, 2007).

In my early work on this topic, inspired by the Muybridge research in
capturing frame-by-frame human motion, I developed the project
Display Movement. My early experience of practice-based study of
interdisciplinarity between digital media and performance derives from
this collaborative multimedia performance piece that I did with my 
students at The School of the Art Institute of Chicago. The project 
captures the speed and glimpses of the performers movement in the era 
of fast communication and technology. For this work I took sequences of 
isolated moments and by unfreezing time I combine them in a single 
image. The methodology was bridging between my practical and 
thoretical work and analyses the link between technological 
performance and the performative embodiment in new media through 
the use of motion capture devices and programming language 
Processing. The performer sees representation of them on the screen. 
This representation follows the movements of the performer like a mirror 
image or shadow, transformed by the potentials of the space. These 
transformations were realized by software running on a computer. In this 
piece of work, “the content is contained in this difference between the 
gesture and its transformed or recontextualized reflection” 7. **Display 
Movement** explores the experimental, process oriented practice-based 
inquiry into digital media involving performance contexts. While 
exploring the integrations of body-centered performance practices with 
motion tracking software, I was also exploring the features of digital 
media as performance. Motion tracking involves real-time sensing and 
analysis of location, speed, duration and various other characteristics of 
movement. The results of this analysis were fed to a computer system 
that generated video and audio in response to the movement. The work 
developed beyond realism to explore notions of non-linear association, 
embodiment and reflexivity by creating motion graphic visualization. New 
production designs and new theoretical frameworks are crucial to get at 
novel digital media forms. The interplay of for instance digital media 
and live performance may be fruitfully achieved only through 
interdisciplinary practice-based research and education.

There is an urge to develop new guides to conduct and new ways to 
tackle the interdisciplinary research in art, raised by breakthroughs in 
science and technology. Moreover, as argued by the Goat Island 
performer and writer Matthew Goulish:

“The human produces the transparent entity of the technology, and in 
return, the technology offers to retransparentize the human.
Moreover, we must ask ourselves not only how we will USE technology, but also whether we will BECOME technology." 8

Presentation of practice as research is still an evolving form, and although many examinations of media performance focus on interactivity within the framework of technology and technological innovation; there is a great deal into performativity as a way to approach a media artwork. Focusing on motion, Display movement tried to tease out some of the complexities and the possibilities of sensory engagement, locating it in relation to the negotiation of embodied subjectivity, in which we are all, as embodied subjects, involved.

4 Wilson, P (2008) ‘WITH THINGS AND EACH OTHER’ hospitals, workers, meters and marchers /the point of centre, head and neck, finding & making audiences, unpublished
References


