

Container Love: Preforming the Body Electric

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ABSTRACT

In this paper, we briefly outline some considerations regarding “**Container Love**”, an experimental **preformance** (presentation & performance) contemplating our moving emotional relationships with machines, and everyday practices through and besides already ubiquitous technology such as PC notebooks. Hence, in our Container Love-preformance - which will be demoed at the conference - we utilize a range of resonant & concrete direct interaction styles in order to guide through layers of emotional Man-Machine symbiotic interaction, which manifest power-relation based semiotic narratives of Human-Computer Interaction (HCI).

During Container Love, IR capture cameras tracking the physical location of the performer manipulate the coordinates of the mouse pointer, which simultaneously manipulates both reactive images, and triggers audio samples. Moving in physical space equals moving in the reactive space of several Java applications which - in combination with oral performer accounts - answer aspects of our guiding question:

How is it that we are in love with our prosthesis?

General Terms

Design, Experimentation, Human Factors, Theory.

Keywords

(Social Anthropology of) Emotionality, Computational Semiotics, Power-Relation Structures of Human-Computer Interaction, Critical Cultural Theory, Interactive Performance System, Mobility, Mobile Application Design, Direct Bodily Manipulation, Resonant & Concrete Interaction.

1. INTRODUCTION

Throughout everyday practices, we interact with technological artifacts dramatically, as if they make up our everyday partners within the socio-historical context of our advanced capitalistic societies. In fact, they *are* our everyday partners, when we form

temporary symbiotic entities, where either we human beings anthropomorph these partners (“I hate you, you goddamn machine”), or they in turn machinamorph us (“Error: You have entered an invalid parameter”).

Symbiotic Interaction thus can be operationalized into subcategories, or vertical structures of symbiotic interaction, for example Mutualism, Parasitism, Commensalism, Neutralism, and Competition; a more concise methodological analysis agenda for Symbiotic Interaction from a power-relation based, structuralist perspective has been proposed in [15] by one of the authors.

As above mentioned quotations highlight, highly *rational and rationalized* benefit-gaining scenarios like work, play, and other technological prosthesis-based everyday practices, already bear emotional aspects that accomplish Symbiotic Interaction.

Insofar - preforming Container Love - we hypothesize that not only above mentioned subcategories of power-relations underlay our intimate relationships with everyday technological artifacts structurally, but that we also experience the ultimate emotional roller coaster ride when interacting with these artifacts on an almost profane level *here and now*.

Thus, Container Love aims at investigating and understanding semiotically how *we are actually in love* with our prosthesis, and how emotional layers of this contained love can be expressed through the preformance itself. More information about the actual interactive system and its functional and technical specifications can be found in section “Container Love Specs”.

From this point of view, research projects that aim at perfecting Human-Computer Interaction and artificially intelligent technology to the degree where we humans will perceive our interactors as if they were for real – being real because they interact with us emotionally – miss out on the already existent narrative punchline of Man-Machine relations. One could almost say that the often cited, famous Turing Test needs to be reconsidered, and rewritten, because in part it is passed already on an everyday basis culturally, and cognitively.

2. RELATED RESEARCH: THEORY

In this section, we exemplify some theoretical influences that have driven the development of our Container Love-preformance.

First published at COSIGN-2002,
02 – 04 September 2002, University of Augsburg,
Lehrstuhl für Multimedia-Konzepte und Anwendungen,
Germany

2.1 Cognitive Science & Semiotics

Research on emotional relationships between us and our prosthesis has been conducted extensively. For example, [11] investigates empirically how people attribute concepts of “self” and “other” – crucial to interpersonal relationships – unconsciously to computers, and new media as if they were humans. Cited authors conclude that concepts such as tact and politeness need to be implemented into interactive system design in order to reflect this unconscious cognition. Unfortunately, the authors themselves do not reflect that socio-historical meaning-making systems such as tact and politeness change over time, and depend on the macrosociological cultural spaces wherein they are performed.

On the other hand, the study of (computational) semiotics deals with the organization of meaning-making signs, which we think Container Love offers only through the performance itself, yet representing a coherent system of computer-mediated signs.

2.2 Social Anthropology & History of Consciousness

Sandy Stone has been writing from a more social anthropological, ethnographic and self-reflective perspective in [13], where she examines and foresees the ways computer-mediated communication and computational semiotics masks identity aspects like gender, age, and race. Stone concentrates on the most part on how people establish, cultivate, and disrupt relationships *through* mediating everyday technological artifacts, rather than asking solely how Human-Computer Interaction and interfacing with computers generates an emotional “battlefield of identity” [14] for the most direct participant: the human being interacting with the computer at hand. Still, Stone’s research has influenced Container Love heavily, including her “Drive-by-Theory” lectures, where she takes critical cultural theory to the performance stage. Stone’s Drive-by-Theory events merge both performance and lecturing, thus already pointing at the direction Container Love follows.

A detailed and elaborate theory of how we dramatically enact and interact with and besides everyday technology can be found in [1]. In addition, [2] has informed research preparations for Container Love regarding the need for contextualizing emotions socio-historically, and semiotically, too.

2.3 HCI & Its Technology-Driven Discourse

The academic field of HCI has brought to life a whole body of research that investigates social processes supposed to be supported by new technologies, interaction techniques, and novel interfaces, e.g. described in [5]. Still, Human Factors and Usability studies follow an enthusiastic overall strategy where it is *preassumed* that HCI will almost automatically bring forth a “better future” through the extensive use of such technology.

The discourse about HCI within HCI is thus technology-driven, rather than reflecting how the everyday usage of already existing artifacts does and maybe should impact usability considerations, that is: what kind of mid- and long-term effects HCI will have on how we emotionally interact with “our” machinery tomorrow, and what kind of mid- and long-term effect HCI innovations had on how we emotionally interact with our machinery today. According to this argument, Container Love serves as a self-

evaluation and tries to find out about these mid-/long-term effects from a usability standpoint, too.

3. RELATED MEDIA, ARTS, AND SCIENCES’ PRACTICES

The succeeding section presents major predecessors Container Love has had in the interrelated fields of Media, Arts, and Sciences.

3.1 Interactive Performance Systems & VJing

Container Love takes into account more recent performance artworks like CEMI’s and Palindrome’s joint interactive dance system “Seine hohle Form” [12], although the authors do not wish to compare Container Love with the choreographic impetus of “Seine hohle Form”, which leads to audio output through gestural manipulation of physical performance space areas.

Another interesting path adopted present blooming Videojockey (VJ) software systems and performances all around the world. VJing relates to Container Love insofar that the relationship of music and imagery play interrelated, if not equal roles, next to audio/video based performances. Amongst other VJing software dedicated to direct interaction styles, <http://www.vjammpro.com> should be mentioned, as should be Mac OS-based software like Arkaos VJ, which can be downloaded from <http://www.apple.com/downloads/macosx/video/arkaosvj.html>; yet another worthwhile evaluation may be VideoDelic, <http://www.uisoftware.com/videodelic/index.html>.

3.2 Reactive Interfaces

Axel Kilian, currently pursuing his Ph.D at MIT Media Lab, has collected quite an impressive array of Java based application topologies and sketches that relate to Container Love due to Kilian’s work invoking reactive virtual spaces [7]. A similar approach can be found in one of the author’s ongoing research, entitled “Image Fun” [10].

3.3 IR Capturing Systems & Mouse Alternatives

The original IR capturing camera used - customized to Container Love’s requirements, see Section “Container Love Specs” - is manufactured by NaturalPoint and called trackIR™. Since 2001, NaturalPoint markets trackIR™ as a “Hands Free Mouse”, and therefore “an assistive technology breakthrough for people with ALS, spinal cord injuries, and other people with disabilities” [9]. NaturalPoint also offers a Software Developers Kit on their Website for download that has been utilized for Container Love.

Other mouse alternative systems commercially available include, for example, CameraMouse Inc’s CameraMouse™ [3], which grew out of the Master of Science program in Commercialization of Science and Technology at The University of Texas at Austin. Unlike trackIR™, which tracks IR beams, CameraMouse™ is a motion capture system, but was considered too costly for Container Love.

4. CONTAINER LOVE SPECS

The following section contains brief functional & technical / semiotic & narrative specifications of this project, starting off with a description of the overall academic context where this

kind of research is conducted, namely Mobile Application Design, and Immersive & Collaborative Virtual Environments.

4.1 Mobile Application Design

Container Love was developed within the context of the University of Design and Art, Zurich's postgraduate program "Mobile Application Design" (HGKZ-MAD), which follows an overall concept stating that Mobility, Motion and Movement are key components of our lives [16], and thus have to be equally researched from both social anthropological, computational semiotics', ludological / Game Studies' [6] and HCI perspectives, especially with respect to the advent of ubiquitous and 3G mobile computing.

Whereas currently empirical studies are underway at HGKZ-MAD, investigating the relationship of "Trust through and

besides Mobile Multi-Player Gaming in Convergent Realities", other HGKZ-MAD research can, for instance, be found at [4].

4.2 Immersive & Collaborative Virtual Environments

At the University of Stuttgart's High-Performance Computing-Center, one of the authors conducts research towards understanding how we can utilize immersive & collaborative interactive systems in order to support, that is: initiate and maintain cooperation between geographically, culturally, and gender-dispersed people in work and play scenarios. We do understand this kind of research as being complementary to above mentioned aspects of mobility, assuming that discourses of both immersion and emission make up major indicators of today's semiotic meaning-making systems of computer-mediated relationships, especially with regards to their everyday-aspects.

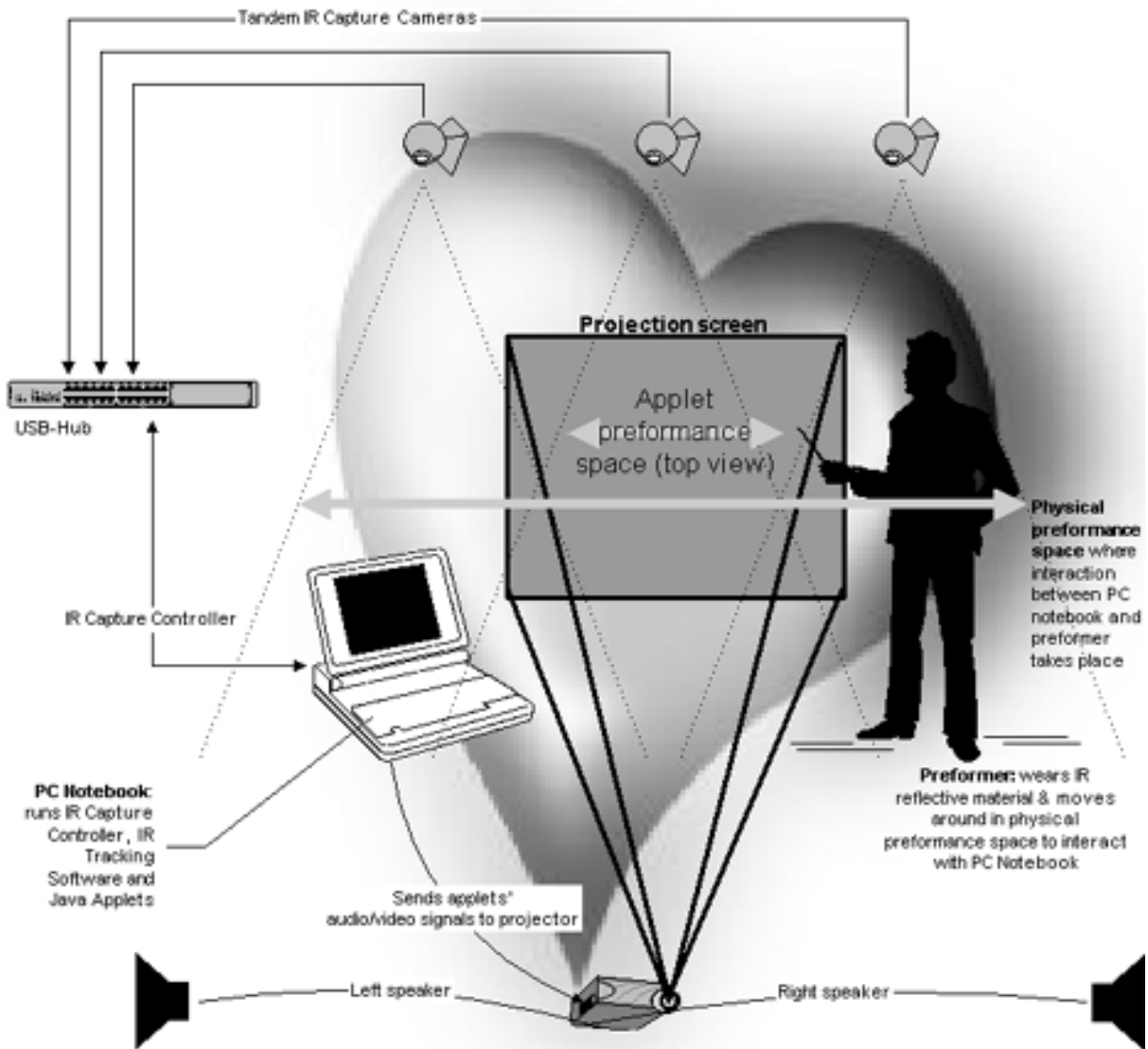


Figure 1. Container Love: Interactive Performance System.

4.3 Functional and Technical Specifications

In the following two subsections, we present specifications of our joint project as highlighted in Figure 1.

Container Love signifies an Interactive Performance System consisting of the following parts:

- Human performer wearing IR reflective material [Optional: Wireless Microphone Headset, including Sender & Receiver (connected to PC Notebook)]
- Set of custom modified, tandem IR capture cameras plugged into a USB-Hub (connecting to the same PC Notebook). The IR unit of these cameras tracks IR light, hence the reflective material mentioned above, and the need for suitable IR band pass filters. For Container Love in its current state, we used flexible filter material passing 800nm and above, so called “plastic polarizers”. Additionally, we substituted the original lenses that came with the cameras with 12mm miniature lenses for 1/5" and 1/4" CMOS cameras for an enhanced circular field-of-view.
- The IR cameras were programmed to roam seamlessly; a development kit for the IR tracking devices we utilized is available for download from the manufacturer’s website. It is built around an ActiveX component which provides complete object functionality: <http://www.naturalpoint.com/dev/tools.htm>. Since the IR camera tracking software works on top of the system’s OS, there was no need to code an API between the Java applets mentioned below, and the original software
- PC Notebook (+ Projector) hosts a range of Java applets within a web browser, see section Semiotic & Narrative Specifications for more details on the applets
- Above mentioned Java applets do react upon movement of the mouse pointer, that is: movements of the human performer; the moving mouse pointer manipulates the reactive image space, and parallelly triggers audio samples upon certain locations of the mouse pointer
- [Optional: PC Notebook running speech recognition software and reacting upon human performer’s key sentences, e.g. “I love you, machine”]

Container Love performs experimentally how we contract a temporary symbiosis with our everyday machines. We are inside the machine, whereas the machine simultaneously dictates how we may move, see [8]. Therefore, while being bound to this notion of mobility, we also perform emotional (=moving) facets of an emotional relationship together with our counterpart. Through literally stepping away from the “natural” location of interacting with a PC notebook., Container Love shows how we sustain a love-akin relationship with a technological artifact, based on semiotic meaning the performer assigns to these artifacts, whereas the artifact in return assigns meaning to the performer.

In order to better understand above outline, Container Love will be demoed during the presentation of the paper.

4.4 Semiotic & Narrative Specifications

Prototypical examples of the Java applets and the overall narrative (without further explanation or controlled performer interaction, and – naturally - without utilizing the IR setup) can be found at <http://www.playbe.com/containerlove/intro/index.html>.

Container Love totals to eight consecutive Java applets expressing love-related audio/visuals of emotional layers. The applets mimic the narrative course of an assumed, unhappy-end relationship, spanning from love “At first sight” (Figure 2), to Curiosity, Fun (Figure 3), Sex, Happiness, Fight, Boredom (Figure 4), and Memories, respectively.



Figure 2. Container Love: Applet “At First Sight”.

The following paragraphs exemplify three stages of this assumed relationship in more detail, where symbiotic power-relations between human and computer come into play.

4.4.1 At First Sight

On start of the Container Love performance, the performer treats the PC notebook as if this notebook was a prospective emotional partner. Both performer and machine engage with each other spatially whilst this engagement is expressed through the first Java applet that translates a typical situation of a first encounter in a Fast-Food joint.

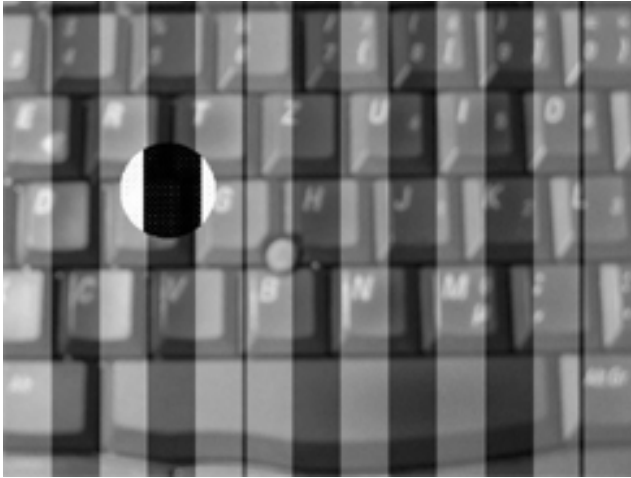


Figure 3. Container Love: Applet “Fun”.

The spatial relationship dividing performer and notebook determines the applet’s audio- and visual output. Moving in physical space in-between the performer’s and the PC’s applet positions causes the applet to play an encounter-like theme. Any given physical movement will move the mouse pointer and magnify the underlying part of the Fast Food joint picture. Approximating the PC will trigger audio samples that increase in their intensity. Moving correctly in space-time in direction of the PC, the audio samples will match with the playing theme. In other words: the performer will move as if he is attracting for courtship.

4.4.2 Fun

The Fun-applet shows the notebook’s keyboard with an claviature overlay. Moving in physical space moves the mouse pointer in the shape of a circle and causes the applet to play piano samples; so the metaphor of both performer and notebook having fun with each other is translated into the performer playing the “right” keys leading to an assumed sexual arousing.



Figure 4. Container Love: Applet “Boredom”.

4.4.3 Boredom

In our boredom applet, both notebook and performer have reached a relational stage where they can only yawn at each other. Moving in physical space triggers gape-like sound played by the applet, thus expressing the feel of the overall relationship. The mouse-pointer within the running applet is substituted with a picture of the scenario itself.

5. CONCLUSION & FUTURE RESEARCH

Future research taking Container Love one step further includes a much stronger utilization of VJing software such as mentioned in section Related Media, Arts, and Sciences’ Practices. Hence, we aim at introducing streaming video instead of static images into the Container Love narrative, and insofar investigate the semiotic interrelationship between audio, video, and interactive performances.

We consider Container Love to be a meaningful contribution to an ongoing debate in a variety of media, arts, and sciences fields, investigating how we are in love with our prosthesis. Being an experimental set-up, Container Love may serve as a blueprint for future endeavors towards emotionalized (wo)man-machine interaction, and simultaneously points us at how far-reaching our everyday relationships with technology are already shaping our lives.

Container Love would also allow for other performers to test how they feel about a simple notebook; thus, in a more advanced state, Container Love should be both usability tested and analyzed qualitatively.

6. ACKNOWLEDGEMENTS

We would like to thank <http://www.anomos.org> for letting us test Container Love under real-life conditions. Thanks for helpful discussion go out to Jürgen Enge (ZKM, Germany), Katrin Schöbel and Isabel Zundel (playbe), Jim (NaturalPoint trackIR™), and Axel Kilian (MIT Media Lab). This research was supported by QualiLife SA Switzerland, Schott Group Germany (Lenses), and 3M Germany (IR filter material). Generous funding was provided by HGKZ-MAD & Dr. Gerhard Blechinger. The title of this paper has been inspired by the song “Container Love” courtesy Philip Boa & The Voodoo Club.

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