DESIGNING SOCIAL PLAY THROUGH INTERPERSONAL TOUCH:

AN ANNOTATED PORTFOLIO

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ABSTRACT

We present five design cases as an annotated portfolio, exploring ways to design for intimate, interpersonal touch and social intimacy in interaction design. Five key qualities are elicited from the cases, including novel connotations sparking curiosity; providing an excuse to interact; unfolding internal complexity; social ambiguity; norm-bending intimacy. The work highlights novel interaction design approaches fostering social play, turning participants into performers of their own narratives.

INTRODUCTION

Within interaction design there has been an increased focus on understanding how to design for embodied interaction. Existing approaches are largely divided into either considering the aesthetics of bodily interaction and sensory experience (e.g., Petersen & Iversen, 1994) or focusing on the notion of embodied interaction as situated in a context (e.g. Dourish, 2004).

We combine these perspectives in the overarching frame of designing for intimacy of interpersonal touch. Our work includes unfolding, through the design cases, the interaction aesthetics of touch between participants, as well as exploring how situating touching others in public spaces can create norm-bending intimacy through social play (Salen & Zimmerman 2003).

The following is a synthesis of five selected cases as an annotated portfolio (see Bowers, 2012; Gaver & Bowers, 2012). Gaver (2012) defines an annotated portfolio as follows: "If a single design occupies a point in design space, a collection of designs by the same or associated designers – a portfolio – establishes an area in that space. Comparing different individual items can make clear a domain of design, its relevant dimensions, and the designer's opinion about the relevant places and configurations to adopt on those dimensions." Further, "an endless string of design examples is precisely at the

core of how design research should operate, and [that] the role of theory should be to annotate those examples rather than replace them.". Such portfolios serve as actionable guides for other designers exploring intimacy of interpersonal touch in public/social settings. We view the works and annotations as knowledge contributions in and of themselves. The annotations in our case correspond to experiential qualities (Löwgren, 2009).

The projects are examples of *research through explorative design* (Hobye, 2011), which is an extension of *research through design* with an added emphasis on sketching "in the wild" as a way to explore potential use qualities - designing and experimenting in the field is where the qualities emerge. The annotated portfolio then becomes a way to communicate these qualities to a wider audience within design research.

Below, we introduce the five cases and our observations of the designs in use. Each case builds upon previous works and illuminates different qualities. We then combine the cases with key qualities to form an annotated portfolio, which is finally elaborated and related to the interaction design field in general.

FIVE DESIGN CASES

Let us introduce the five cases and the essence of our observations:

SINGING PLANT

Our first foray into using a biological entity as the interface, *Singing Plant* was an installation consisting of a living plant wired up as a sensitive Theremin antenna. Participants could play music by touching or gesturing near the plant, the sensitivity field or "aura" extending several centimetres away from the plant. It has been displayed in various settings, including Roskilde

Festival 2004 and the Botanical Garden at the Natural History Museum of Denmark.

Observations: Participants quickly learned the interface by watching previous participants. They anthropomorphised the plant, ascribing feelings and aura to it. In playful settings such as Roskilde Festival, participants pushed limits and experimented by e.g. hitting the plant to make it scream. In museum-like social practices such as the Botanical Garden, where vision is usually the primary sense and touching is not normally encouraged, the installation challenged the social practice itself and afforded new possibilities in the space. The interactive nature of the *Singing Plant* accentuates it as living and even communicating; hidden technology altering the human-plant relationship in a fundamental, almost mythological way. It enabled emergent storytelling to evolve around the plant.

MEDUSAE NILFISK

Medusae Nilfisk was a large interactive fire and light installation with a focus on social interaction, made for Roskilde Festival 2007. It consisted of three huge jellyfish-like lamps sewn from used wartime parachutes and kept inflated by antique vacuum cleaners. Each sculpture was illuminated from within in all colours of the rainbow and topped with a propane fire cannon.

To enable the audience to trigger the fire cannons in an engaging way that fostered social interaction, we placed two poles in the ground, too far away from each other for one person to reach both at once. The audience could trigger the fire cannons by holding hands and touching the poles, thereby creating an electrical connection between the two poles.

Observations: We had expected guidance to be necessary to explain the unusual interface, but the installation turned out to be so popular that participants learned all they needed by observing previous participants. Often a participant would go out and "recruit" others to hold hands with. Participants were happy to be given an occasion to approach and engage with others – particularly of the opposite gender. It became an excuse for re-negotiating rules for social contact in a public setting. However, participants rarely spontaneously experimented with more daring possibilities: holding other body parts than hands, kissing, discovering how how many people could form the chain.

ELECTROLUMEN

Electrolumen encourages touching other humans in a less predefined way and provides multiple analog input interfaces to simultaneously create music and control light. *Electrolumen* consists of four authentic street lights and power lines on a telegraph pole, which is however only 1.5 meters tall, bringing an everyday but normally distant and dangerous object easily – disconcertingly – within reach. Participants can play music with each other by connecting the four metal street lamps via touch in various ways. The touch path can be a single person or through multiple people, but as there are more lamps than a person has hands, a collaborative effort gives a richer result.

Observations: As it is not enough to touch one lamp - one has to connect two lamps via touch - participants had trouble working out how to use the installation, unless they had the opportunity to observe previous participants. While how to touch each other was not predefined, almost all participants held hands or at most shoulders, few experimenting with kissing etc. *Electrolumen* enabled open ended exploration; limited intimate play was observed.
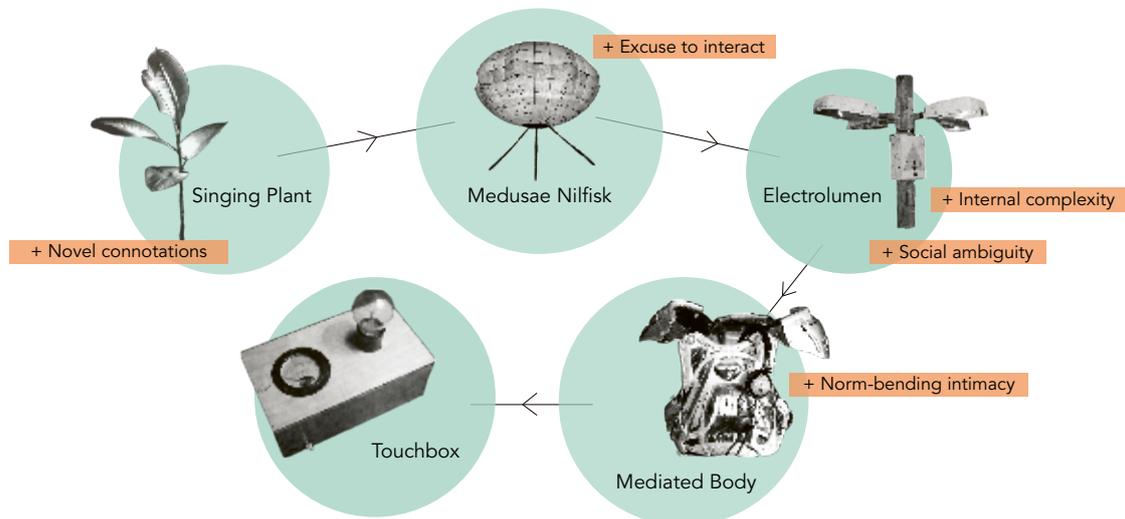
Figure 1: Progression of design cases and key qualities.

MEDIATED BODY

The *Mediated Body* (Hobye & Löwgren, 2011) is an installation consisting of a performer, a participant and a suit that generates sound and light controlled by how the participant touches the performer's bare skin (or vice versa). The sound, a rich soundscape changing according to interpersonal touch, is available only in two pairs of headphones worn by the participant and performer, "socially insulating" them from any audience to the experience.

Observations: Mediated Body was very successful and provided an intriguing and novel experience for many participants. It completely altered social norms, making relatively intimate touch between strangers socially acceptable. The performer, an integral part of the installation, was in himself both instigator and guide. The work actively encourages exploration of another human's body, hence transgressing intimate boundaries through innocent play.

TOUCHBOX

Touchbox is a development of *Mediated Body*. We designed *Touchbox* to understand the properties of *Mediated Body* without the performer as a facilitator. It consists of a wooden box with an old-fashioned light bulb and two sets of headphones. It requires two participants to don the headphones and touch each other, creating a rich and varied soundscape in the process.

Observations: Because the interaction consisted of two equally novice participants, it required them to explore the possibilities on their own. Compared to *Mediated Body* with the experienced performer who acted as a guide, the participants had the liberty to find their own meaning in the interaction. Hence we observed more varied interactions, from intimate to goofy. Although the performer in *Mediated Body* enabled more elaborate and more well defined interaction, *Touchbox* enabled what we consider an intimate renegotiation of the interaction space between two participants.

QUALITIES OF INTERPERSONAL TOUCH

The diagram in Figure 1 shows the cases as a conceptual progression, where the designs build upon each other and new key qualities emerge. This notion of progression is not present in previously published annotated portfolios, and we find it to be a strength in terms of academic criticizability and grounding. The diagram serves as a basis for further elaboration; we will in the following develop the key qualities.

NOVEL CONNOTATIONS SPARKING CURIOSITY

The unusual connotation of making a plant sing fostered curiosity among the participants. What emerged was primarily curious, explorative interaction with the plant, but also conversation around the plant about our relationship with biological objects. *Singing plant* marked the starting point for our exploration into designing with novel connotations, for creating play *around* the interface, not only *with* the interface. This quality is present in all the subsequent cases.

AN EXCUSE TO INTERACT

The fire cannons in *Medusae Nilfisk* provided an initial, 'external reward' motivation, but in the course of the

interaction holding hands and meeting new people became just as interesting for the participants. Triggering the gas cannons became an excuse for interactions that could not otherwise be articulated. This dual approach of offering an 'excuse' for interaction is present in all the subsequent cases. In *Mediated Body* and *Touchbox* we observed the intertwined interest in exploring the aesthetics of the sounds while exploring each others' boundaries of intimacy at the same time.

UNFOLDING INTERNAL COMPLEXITY

Where *Medusae Nilfisk* was a binary interface (you trigger the gas cannons when the two poles are connected), *Electrolumen* introduced more complex and analog interaction. Here the amount of touch, combinations of different lamps and activity level modulated a complex set of sound patterns. There is not a simple causal relationship between input and output – the interface and internal workings of the system are complex enough to warrant exploration. This is what we call internal complexity. *Electrolumen* as well as *Mediated Body* and *Touchbox,* facilitated curious and explorative interaction, where participants would experiment with different ways of creating sounds.

SOCIAL AMBIGUITY

Electrolumen was our first interpersonal touch installation that utilised an open-ended approach. There was no obvious purpose, only different touch areas that could be used to explore a soundscape. Participants had to socially (re-)negotiate with the others interacting; touch someone, create a collaborative sound or explore the piece. This created what we call social ambiguity, extending upon the notion of Gaver et al. (2003) to provide enough ambiguity to allow for multiple interpretations. The ambiguous dynamic was especially useful for interactions that would not be socially amenable to verbalisation, e.g. wanting to hold hands or touch each other.

NORM BENDING INTIMACY

The full-body touch interface of *Mediated Body* encouraged people to directly explore norm-bending intimacy with the performer. The touching that the piece asks for would normally be deemed socially inappropriate for two people meeting for the first time. Here they would explore how different kinds of touch would create different types of sounds. This would often result in quite intimate engagements. When the two finally took off their headphones they tended to revert to normal protocol of getting to know each other; politely asking for names, etc. In this state of decompression after an intense and emotionally engaging experience, the two people had to reconstruct a "normal" relationship outside the intimate soundscape interaction.

CONCLUSION

This paper demonstrates possibilities to design for intimate interpersonal touch and how this can be utilised to create socially playful interactions between participants. We have described five interrelated design cases and extracted a set of five different key qualities as abstractions, which can serve as inspiration for other design scenarios within similar fields. We use the format of an annotated portfolio, where the generative knowledge contributions consist of the artifacts themselves, the selection and juxtaposition, as well as the annotations. This approach, representing an alternative to theory-driven work and conventional empirical prototype testing, appears promising for communicating results of constructive design research (Koskinen et al., 2009). Specifically, it preserves some of the complexity, richness and interrelation of the cases and thus yields a knowledge contribution that is more criticizable and appropriable for constructive design research peers.

Bowers, J. (2012). The logic of annotated portfolios: Communicating the value of "Research Through Design." Proc. Designing Interactive Systems (DIS '12), pp. 1–10.

Dalsgaard, P., Hansen, L. K. (2008). Performing perception: Staging aesthetics of interaction. *ACM Trans. Computer-Human Interaction* 15(3):1–33.

Dourish, P. (2004). *Where the action is: The foundations of embodied interaction*. MIT Press.

Gaver, B., Bowers, J. (2012). Annotated portfolios. *interactions* 19(4):40–49.

Gaver, W. (2012). What should we expect from research through design?, Proc. Human Factors in Computing Systems (CHI '12), pp. 937–946.

Gaver, W., Beaver, J., Benford, S. (2003). Ambiguity as a resource for design. In Proc. Human Factors in Computing Systems (CHI '03), pp. 233–240.

Hobye, M., Löwgren, J. (2011). Touching a stranger: Designing for engaging experience in embodied interaction. *Int. J. Design* 5(3):31–48.

Koskinen, I., Binder, T., Redström, J. (2009). Lab, Field, Gallery and Beyond. *Artifact* 2(1):46–57.

Löwgren, J. (2009). Toward an articulation of interaction esthetics. *New Review of Hypermedia and Multimedia* 15(2):129–146.

Petersen, M. G., Iversen, O. S., Krogh, P. G., Ludvigsen, M. (2004). Aesthetic interaction: A pragmatist aesthetics of interactive systems. Proc. Designing Interactive Systems (DIS '04), pp. 269–276.

Salen, K., Zimmerman, E. (2003). *Rules of play: Game design fundamentals*. MIT Press.