Media Façades beyond interaction

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ABSTRACT

As part of a the research project Digital Urban Living [www.digitalurbanliving.dk], we have taken part in the design of two large-scale installations that employ interactive technologies to facilitate participation and foster social interactions in public, urban settings. We present the two cases, *Aarhus by Light* and *Projected Poetry*, and discuss the future trajectory of our work in this field, as well as some of our findings regarding the challenges of designing large-scale public interactive installations. In doing so, we specifically highlight the possibilities in relation to designing for affective experience and engaging interaction that advocate for a long-term interactive experience.

General Terms

Design, Experimentation

Keywords

Urban screens, public displays, media façades, urban interactions, affective experience, engaging interaction, interaction design

1. INTRODUCTION

HCI researchers have recently turned their attention to the expanding use of digital technologies in realms of human activity beyond the workplace, including the home, entertainment, the school, museums etc. Urban life, with its social and cultural practices, differs from other aspects of human life, and has different kinds of spatial and material circumstances, which poses new challenges for interaction designers. Malcolm McCullough [##] has in his account of the intersection between architecture and interaction design drawn to attention the importance of addressing the situatedness of urban computing and has as part of that purpose compiled a tentative list of thirty situational types (e.g. watching, idling, cruising, attending, gazing) indicating the complexity and particularity of the urban setting. Adam Greenfield and Mark Shepard [##] have also explored the terrain of urban computing
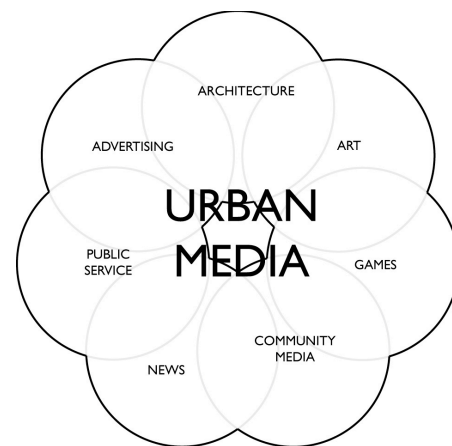
Figure 1. Genres of urban media.

with a particular concern for the local and context sensitive aspects of what they call ambient informatics in contrast to urban computing. In this position paper, we focus on one particular kind of urban computing, media façades, which is the general term for incorporating displays as an integrated part of a building's façade.

Within the domain of media façades a number of genres may be identified (see Figure 1) of which advertising together with news is by far the most common in terms of number of installations around the world while at the same time being the oldest and most influential type of media to be integrated into buildings. The buildings surrounding Piccadilly Circus and Times Square are some of the archetype examples of commercial advertising used as a media facade and Victory Park in Dallas, Texas, is a new large media façade consisting of eleven large-scale outdoor LED video screens used for commercial as well as art purposes [http://www.mediaarchitecture.org/victory-park-dallas/].
Architecture has throughout history been constantly on the lookout for new ways of renewing itself with new expressions and use of new materials. Use of mechanical devices are among ways of dynamically altering the facade expression as seen on Institut du Monde Arabe in Paris [http://www.imarabe.org/], where iris-like shutters automatically open or close to adjust to the lighting conditions. Art is the genre where artists are the driving forces behind the creation of the media façade, like in the case of Body Movies an installation by artist Rafael Lozano-Hemmer [http://www.medienkunstnetz.de/works/body-movies/]. Games are often used along with other genres such as art or com-munity media. Blinkenlights [1] is a classical

example of such an installation where artists placed lamps behind each window in a building in Berlin and used the pixel matrix as a screen for playing pong and displaying low-resolution animations. Community Media is the media facade version of online communities as explored as part of BBC big screens all over Britain. Public Service is driven by the need to provide information to citizens in urban areas, for instance in terms of bus schedules, weather forecasts or traffic info. News is like advertising in some sense the original media façades as in moving message display signs dating back to before the age of digital technology. The number of public news screens is constantly increasing, and seem to keep on doing so in years to come.

2. DEISGN CASES: TWO MEDIA FAÇADES IN AARHUS

Using media façades as a subcategory of urban computing our research focus revolve around coming to grip with sense-making and social mediation as part of identifying key characteristics of interaction with media façades in an urban setting. Our approach strongly relies on design research through design [##] by conducting real-life design interventions where we have taken advantage of our engagement in specific design practices in order to explore aspects of urban computing affiliated with the center for Digital Urban Living, Aarhus University. The specific cases that provide the fuel for our discussion are Aarhus By Light and Projected Poetry.

2.1 Aarhus By Light

Aarhus by Light (2007, www.aarhusbylight.dk) was a social experiment with an interactive media façade at the Concert Hall Aarhus in Denmark. In the 180 square meters large façade lived small computer-animated creatures of light. When you approached the concert hall, you entered their world, which was also a part of the city. On the central path leading visitors towards the concert hall were three illuminated zones, each covered with carpets in bright colors (pink, blue, and yellow). In these zones, camera tracking translated the visitors' presence and movements into digital silhouettes on the façade, and through the silhouettes, visitors could caress, push, lift and move the small creatures. The creatures would wave back, fight, sleep, climb, jump, kiss, and occasionally leave and come back, thereby creating a relation to the visitor which is not only physical and embodied but also affective and emotional.

Figure 2. Aarhus By Light

During a two-month period, thousands of citizens walked past the installation. A great part of them engaged in investigating, socializing and acting out in front of the media facade. Regardless of age and gender, people were intrigued by the unfamiliar, yet seemingly understandable, representation of themselves on the screen. This resulted in lots of strange and unusual behaviour while interacting with the facade, marking a departure from traditional codes of urban behaviour.

2.2 Projected Poetry

Projected Poetry is a projected public installation set in the centre of Aarhus, Denmark. The installation is to be part of AARHUSCO2030, a 2009 initiative that aims to raise awareness about carbon emissions in Aarhus. The over-all objective of the initiative is to promote carbon emission neutrality by the year 2030.

Projected Poetry uses the facade of a prominent cultural institution, Ridehuset, as a display by means of projection technology. On the facade, a number of words relating to carbon emissions and climate issues float around above the heads of passers-by. Some of the words are emphasized to form a statement about carbon emissions. As people approach or walk past, the words pulsate and reach out to them. If a person stops, the word above grows and is turned into a speech bubble. This word can now be dragged to a different part of the facade. In this way, people can create and manipulate sentences relating to climate and carbon emission. The concept borrows from fridge magnets that can be arranged to form statements and sentences.
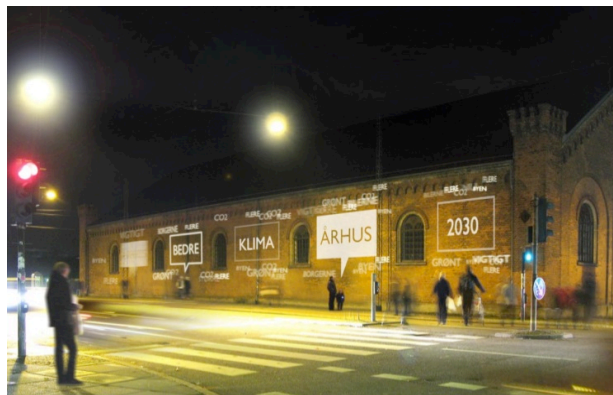

Figure 3. Projected Poetry

Inside Ridehuset, a number of installations are set up to facilitate discussions about climate issues. The Projected Poetry is designed to reflect this use of Ridehuset as a forum for public debate. As such, the aims of the Projected Poetry are thus 1) to catch the attention of the public, 2) to communicate the climate theme, and 3) to convey the understanding that AARHUSCO2030 is about fostering dialogue, debate and public participation with regards to how to address the carbon emission challenges facing the city.

2.3 Findings and perspectives

Although the two media façades are related in the underlying research themes and assumptions, we believe they begin to draw the picture of a future research trajectory, which we will now try to elaborate. Aarhus By Light was successful in attracting people to engage in the interaction with the creatures

presented on the façade in a walk-up-and-use and short-term interaction style. The installation did foster social interaction but mostly in uncovering and playing around with the basic technical functionality of the interactive installation as a whole. Aarhus By Light spurred an extensive range of interaction styles on both individual and social levels; and it is clear from interviews and observations of the installation, that it has been successful in staging interactions in urban space that have brought people together and changed their perception of the physical surroundings from passive to active. However, when it comes to more long-lasting effects or engaging experiences, the picture is unclear. We are confident that people have in many respects experienced a "here-and-now" playful interaction fulfilment; however, in the following we would like to open up for a more nuanced view on the potentials of urban interaction design.

Concerning the Projected Poetry, we are trying to heighten the engagement of the interactive experience to last longer than the immediate interaction. While still using much of the basic functionality to spur the initial interaction, the content presented on the Projected Poetry is designed to more fully engage people in not only exploring the interactive possibilities, but in encouraging them to give their own opinion and reflect on the consequences of the climate changes we are witnessing today. We see this movement from pure attraction by interaction, to more profound and long-lasting engagement through the interaction as a research trajectory that we would like to further explore in our future work in Digital Urban Living. Here, we aim at bringing together different research cases in providing interactive installations trying out qualitatively new forms of interaction and content-production. We come from the discipline of interaction design; however, we do believe it is important to stress, that there is more to the design of media façades than the immediate interaction. In the next section we would like to further highlight this point of view in relation to future projects to come in the realm of Digital Urban Living.

3. FUTURE WORK

The Digital Urban Living project addresses a diverse array of issues, tensions and potentials. In the following, we shall outline two specific concerns, which are of particular interest for us in our future involvement in the project, namely *affective experience* and *engaging interactions*.

3.1 Affective experience

To describe the perceptive, emotional and cognitive elements of the possible urban interactions spurred by media façades, we find an inspiration in cultural theory and digital aesthetics and the concept of *affect*. Affect is described as the level of experience where our non-conscious bodily experience meets our conscious cognitive experience of ourselves and the world (Massumi 2002). Affect denotes a sensual and dynamic dimension of experience where our exo-referential experience (perception) is coupled with our endo-referential experience (passion, proprioception, viscerality) in what we term the affective dimension of experience (Massumi 2002). The concept of affect is therefore useful in working with design of interactive technologies, since it offers a vocabulary to more precisely analyze our perceptual activity in urban space on a micro-level.

On a macro-level, the concept of affect offers a way to understand how human practice in the world is determined by a

person's ability to affect the world and a person's ability to be affected by the world (Clough ed. 2007). Affect is a lived, dynamic and experiential tendency that in a given situation translates into cognitive and emotional experience of the world founded in an intersubjective cultural and social dimension (Boehner 2005). The affective dimension of experience is not individual in the meaning of being the property of an individual (unlike the perceptive capabilities); it is a virtual space of possible experiential reactions to a given situation, some of which are actualized, some of which remain possible but real in their virtuality (Massumi 2002).

To the future design of media façades, the concept of affect offers a way to describe the synesthetic experiential conditions always present when interacting with these installations. It can be used to further experiment with input technologies on a micro-level creating new interaction forms e.g through kinesthetic interaction. On a macro-level, the concept of affect explores the correlation between a person's ability to think and feel and the body's ability to act in the world. Thus, designing for affective experiences always entails considering how a particular installation might spur long-lasting effects on a cultural and social level by giving the individual user the means to change his, her or others' conception of a given situation. Projected Poetry is a step in this direction, and in the future it would be interesting to work with scenarios where users themselves have the possibility to contribute to the content of the wall (e.g. by SMS or other input technologies). Another scenario would allow the wall to display how much CO2 a given user was producing at the moment, making it possible for him/her to lower that amount (e.g. by deciding to use collective transportation, by supporting wind mill energy etc.). Both of these scenarios are examples of how the immediate interaction might be both re-inforced and prolonged altering the affective experience of the installation altogether. The digital infrastructure offered by the media façades shapes *"...both the affective experience of being in the city and the choices we make there."* (Greenfield & Shepard 2007, p. 14). And the affective experience is both in the immediate interaction as on a longer-lasting perceptual and cognitive level. In the realm of Digital Urban Living, we hope to be able to experiment both with the interaction forms as well as the socio-cultural content and impact of the media façades.

3.2 Engaging Interaction

Another salient theme in the Digital Urban Living project is to explore the notion of *engaging interaction*. We propose that pragmatist philosophy, particularly that of John Dewey, offers an interesting perspective on exploring and experimenting with the ways in which situated interactive systems and installations may engage users in participation and inquiry. Deweyan pragmatism, or instrumentalism as it is also known, posits that the 'truth' and value of our theories and conceptualizations of the world must be evaluated by their consequences in practice, i.e. to which extent they help us experience, understand and transform our surroundings. It is a dialogical perspective that promotes experimental inquiry into the situations in which we are placed through reciprocal action and reflection. "We only think when we are confronted with problems" writes Dewey [Dewey, 1938], and problems spur a process of inquiry in which we try to transform an ambiguous or challenging situations into something stable and meaningful. In this process of inquiry, technology can act both as a constitutive of our experience *and* as instrument for altering future experience by

experimenting with and transforming the situation. This process is dependent on both mental and embodied action, it in fact conceives of the two as inseparable in understanding our experience of and in the world.

On the basis of these key notions, we seek to explore in our projects how new situated technologies may function as means of engaging users in urban settings and create meaningful encounters and experiences. As a concrete example, Projected Poetry may be construed simultaneously as an object of inquiry that invites material-semiotic experimentation and exploration in its own right (it is a new and alien intervention into the cityscape, after all), as well as a tool for inquiry and sense-making with regards to problematic situations beyond the immediate fascination of and interaction with the installation in terms of relating to, reflecting upon, communicating, and socially debating carbon emission issues.

3.3 Summing up

In our opinion, affective experience and engaged interaction are two perspectives that both offer important insights into the future design of media facades in an urban context triggering a long-term engagement in terms of production of content and contextual impact. Future projects will further explore the trajectory presented in this paper, hopefully to move beyond the immediate interaction to encompass the whole situation of use.

4. ACKNOWLEDGMENTS

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