NON-TRIVIAL MEDIA FAÇADES

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Abstract. This paper presents a discussion of contemporary interactive media façades that complements the currently primarily technical framing of this field of research. Media façades, in the form of digitally orchestrated façade illumination, are discussed here as sites of potential encounter and interaction that form part of the public sphere. These aspects seem both underestimated as well as underused as media façades tend to be limited to pre-programmed and primarily ornamental trivial response patterns, or to serving as oversized displays. This paper discusses media façades from an architectural rather than a technological perspective and critically assesses the promises of interactivity as well as implications of such façades on urban public space.

Keywords. Media façades; interactive façades; public space; non-trivial machines; cybernetics.

1. Media façades

Throughout the world buildings in urban centres are increasingly illuminated at night. Façades use a variety of strategies and technologies to increase visibility and to grab attention once darkness falls, ranging from large-scale LED screens (Chanel in Ginza, Tokyo) to LED-based façade illumination systems (UN Studio’s Crystal Place, Kaohsiung) to façade projections on building scale (555KUBIK for the Kunsthalle, Hamburg). Illuminated façades with digitally controlled lighting technology, also described as media façades, seem to be particularly popular in Asia. Hong Kong brought coordinated building illumination to the city scale by setting up the “Symphony of Lights” in 2004: Buildings throughout the inner city on both sides of the Hong Kong Harbour perform in a large scale light show featuring dynamic building illumination, lasers, fireworks and sound. While many tourists are impressed and appreciate
the intense visual spectacle, architects seem hesitant to conceive of this aspect of buildings as a domain of architectural designing. Digitally driven façade lighting systems provide new sites and new opportunities for expression, and new ways of creating identity for buildings in relation to their inhabitants and within larger urban contexts. In the majority of buildings equipped with media façades, technological means however seem to have overtaken architects’ ability to respond adequately. With innovation cycles in façade lighting technologies being much faster than average building life spans, illumination schemes are added to façades post facto, and often seem disjunct from the architectural forms and spaces they are attached to. Media screens are often merely used to display advertisements or decorative seasonal patterns that do not relate to their ‘host’ buildings much. Many illuminated façades throughout Asian urban centres that are labelled ‘intelligent’ merely emphasise building contours with intense and dynamic coloured lighting that serves to catch attention (Figure 1).

![Figure 1. The Hong Kong Harbour skyline (top), a GAP store in Shanghai (bottom).](image)

While an increasing number of new building façades are now equipped with advanced lighting technology, a creative void seems to remain regarding the use of such technology: In Macau, the Grand Lisboa Casino for example boasts an ‘intelligent’ lighting system consisting of 59,000 LED pixels that, despite the impressive numbers, forms merely a large but somehow arbitrary eye catcher. In Hong Kong, media façades are similarly devoid of content, and
tend to display uninspired advertisements or address an anonymous audience declaring: “Welcome to Hong Kong”. In Tokyo, Klein Dytham’s UNIQLO building features a street front that is entirely illuminated and shows animated, Tetris-like chunky pixellated patterns next to the retailer’s logo. In Shanghai, a high-rise building with a gigantic LED screen across the famous Bund promenade ironically reminds tourists and residents alike to “Protect the environment and save energy!” Few contemporary media façades escape such banality which seems to result from the conception of building façades as mere attention-grabbing display surfaces, following commercial paradigms. Haeusler’s (2009) distinction between ‘technology’ and ‘content’ in his thorough overview of contemporary media façades suggests that they tend to be developed as empty vessels devoid of and separate from content in analogy to other media, for example generic paper accommodating textual content. This separation of content and medium seems to generate the understanding that architecture is concerned with the ‘empty’ medium, whereas content is left to either artists or, more commonly, commercial interests. What if media façades were more than displays but a means for buildings to act and thus interact with their environments in more engaging, and perhaps more meaningful ways? What is the architectural, spatial scope of media façades? This paper is based on the assumption that contemporary media façades often do not live up to such architectural concerns. In the following, I argue that limitations in architects’ designing of media façades may not be due to technological limitations but to conceptual limitations. In the following, I review previous work in the field and speculate on how digital technology may provide opportunities for interactivity in a cybernetic sense: From a cybernetic perspective, interactivity requires feedback loops integrating human and building behaviour, which could allow for interaction as opposed to commonplace trivial responsiveness.

2. Interactive media façades – a brief review

From building illumination schemes that emphasised building shapes at night since early in the 20th century, illuminated façades in urban environments eventually developed into display surfaces. New possibilities offered by digital technology inspired explorations in dynamically enhancing space through digitally orchestrated light and sound arrangements from the 1960s onwards, as illustrated by Xenakis’ ‘polytopes’ (Oswalt 1991). Early media façades aimed to create relationships between buildings and inhabitants, visitors or urban contexts. Among these early projects was Toyo Ito’s 1986 Tower of Winds in Yokohama, which expresses response to environmental parameters in terms of light effects. The tower responds to wind direction and
speed as well as time and sound and attempts to poetically blur the boundaries between response to individual environmental factors – it may in this way be considered an ‘ambient building’. Most recently, the incorporation of digitally controlled LED and fluorescent light tubes has resulted in media façades that promise interactivity. The façade of the Allianz Arena soccer stadium in Munich designed by Herzog and de Meuron for example responds to internal activities by changing its colours between red, blue and white to indicate which team is playing on a particular day. It thus allows for a building to express different ‘identities’. The D-Tower in Doetinchem in the Netherlands by Spuybroek/NOX is a small sculptural tower that represents citizens’ mood - as derived from a daily questionnaire - in coloured illumination. Recent projects have used a variety of techniques to express responses to external factors through media façades. The BlinkenLights installation in Berlin from 2001 could even engage the public by displaying animations and games that were uploaded and played by members of the public.

Research on media façades tends to be framed technologically rather than architecturally and most often concerns implementation and technological questions – what kind of effects can be achieved by LEDs or fluorescent tubes, for example. Haeusler’s (2009) comprehensive review of media façades illustrates this tendency as his classification of media façades into categories such as: projection, rear projection, window raster animation, display, illuminated, mechanical and voxel façades takes primarily technical aspects into account. Beyond detailed technological considerations, media façades have also been discussed as a part of social and urban spaces. Based on their applied design work as well as on a review of existing cases, Dalsgaard and Halskov (2010, p. 2280) present eight challenges to the design of urban media façades. In summary, they emphasise the social and integrative dimension of ‘media façades’ in urban settings and the need to integrate content and medium of expression. They further point out that urban media façades should address diversity of activities and accommodate unpredictability. Dalsgaard and Halskov (2010, p. 2284) remind readers that media façades are part of urban life and call more attention to the long-term changes that such façades may impose on the city. Media façades in this view catalyse new patterns of use and socialisation, and may be seen as “platforms for ongoing development and adaptation” (ibid.).

From a more energy-concerned viewpoint, media façades form an anomaly within the general desire to conserve energy and resources. Media façades waste energy on an increasing scale and create ‘light pollution’ in urban centres, which has been claimed to have a range of adverse effects not only on the health of inhabitants but also on ecological context. How can media
façades make sense? Selkowitz et al. (2003) call for performance-oriented interactive façades that should respond to changing external conditions and internal needs. They suggest that façade responses could include awareness of harvesting and consumption of energy to maintain visual and thermal comfort of inhabitants. These demands should be answered by ‘intelligent envelopes’ (Wigginton and Harris 2002) – façades that are both responsive and ‘interactive’. Interactivity here seems to refer to the ability of buildings to dynamically adapt to constantly changing environmental conditions but is not further explained. The energy-concerned viewpoint suggests that building façades are part of larger-scale regulatory systems which in their entirety form buildings. From this more systemic viewpoint, responsiveness can be seen as enabling buildings to self-regulate their internal states to the benefit of their inhabitants. Next to serving their inhabitants, this responsiveness leads to improved building performance and can be seen as indirectly extending the life spans of buildings by improving their viability. Interactivity, as further discussed below, exceeds responsiveness in the sense of carrying out pre-planned trivial response to external input. Contemporary media façades, as the above brief review illustrates, are typically responsive, but rarely interactive. The following sections of this paper discuss two aspects of media façades that aim to complement mostly technologically focused previous work with architectural concerns: interactivity and the implications of media façades on urban public space.

3. Interaction

Media façades are often labelled ‘interactive’ yet there seems limited consideration of the prerequisites for interaction. The following discussion is based on a cybernetic perspective on interaction. The term ‘interactive media façade’ suggests that building façades can act so as to have an effect on human beings and vice versa. Many existing media façades in this sense cannot properly be considered ‘interactive’, but merely trivially responsive or reactive as they tend to follow predetermined linear activity patterns. Realities:United’s ‘interactive’ Crystal Mesh media façade for the Iluma building complex in Singapore is a characteristic example, where technological implementation is at the centre of attention and the interactive nature of the façade remains unclear. Fischer and Glanville (2011) argue that contemporary conceptions of interactivity are limited by their reliance on push-button reactive technologies that are best characterised in terms of predictable control and linear causality (Glanville 2009, p. 82). Interactivity in the cybernetic sense, in contrast, is grounded in circular causality, which Fischer and Glanville suggest is “intuitively obvious wherever dynamic stability occurs” (ibid.). Interaction implies sharing, dia-
logue and a mutual in-between and involves unpredictable and serendipitous encounters where interacting parties do not enforce mutual control (Glanville 1998). In architecture, interactivity in the cybernetic sense seems desirable as it allows for mutual learning and adjustment between buildings and inhabitants – which seems appropriate when buildings are required to remain viable for increasingly long time frames to conserve resources. Fischer and Glanville (2011) conclude that much of contemporary interactive art and design remains limited in scope compared to the systems conceived and implemented by early cyberneticians such as Gordon Pask and others, including Ross Ashby and Heinz von Foerster. In these works, technical systems interact with human beings in manners that are not linearly predetermined. This is permitted by feedback loops that allow software not only to respond to an external party, but also to initiate changes itself, such that behaviour can be changed dynamically and unpredictably.

Such feedback loops offer new perspectives on the potential capabilities of buildings: interactive façades can be called ‘interactive’ only if buildings are allowed and enabled to act and respond to their inhabitants in non-trivial ways. This line of thought dates back to the early pioneering work of Cedric Price, John Frazer and Gordon Pask. In Price’s and Frazer’s Generator project (Frazer 1995), a reconfigurable building not only responded to its inhabitants’ wishes, but also self-initiated changes once the building became ‘bored’. Pask’s Musicolor software (Haque 2007) not only responded to, but also acted with – and thus truly interacted with – human musicians by being able to initiate actions.

4. Closing the loop: Buildings as actors and interactors

The above review suggests that most contemporary media façades cannot be characterised as interactive. One recent project however has been conceived with a similar notion of interaction in mind: “Ada”, an entertainment exhibit made for the Swiss Expo in 2002 that was able to interact with people, using a language of light and sound (Eng et al. 2003). Ada maintained her own set of goals which made her able to both respond and act. Eng et al. (2003) describe Ada as an ‘inside out robot’ that responded to visual, audio and tactile input, and could express itself through light and sound. Ada’s developers thought of her as an organism that was designed to have coherence in the eyes of human visitors. This blurs the boundaries between machine and environment, such that identification of the ‘robot’ is now dependent on visitors’ or inhabitants’ perceptions of coherence or identity. Similarly to Pask’s Musicolor, Ada was developed for a context “in which humans, devices and their shared environments might coexist in a mutually constructive relationship” (Haque 2007).
Mutuality implies that both parties in an encounter are able to change each other. In the case of buildings, this implies that buildings do not only serve humans, but that they can – within certain constraints – also resist human desires to pursue their own goals. Conversational encounters in a cybernetic sense imply mutual learning in dynamic and open-ended processes. Rather than executing pre-programmed linear response patterns, buildings may be enabled to close interaction loops: Where humans may learn from buildings which habits are most wasteful, buildings may learn about particular inhabitants’ comfort zones. Expression of such internal adjustments to the outside could show traces of building inhabitants’ lives on usually sleek and uniform corporate façades. A visual expression of a such a scenario can be found in the superflat paintings of the Japanese artist Chiho Aoshima – in particular in her renditions of buildings and urban contexts that blur the boundaries between natural, artificial, buildings, humans, and plants (Figure 2).

Aoshima presents a world in which buildings seem to be social beings akin to humans. The city is rendered as a society of animated buildings which seem to express themselves through their façades. Aoshima’s conjecture of ‘living’ high rise buildings suggests that urban environments may not be conceived merely as arrangements of inanimate solitary towers but they could also be thought of as societies where conceptions of inside and outside, conceptions of natural and artificial as well as conception of public and private realms merit reconsideration. Taken as a point of departure for a rethinking of media
façades, this suggests an architectural context where façades are not understood as boundaries but as sites of encounter.

5. Media façades in the public sphere

Media façades are typically able to express through lighting patterns to the outside of buildings, but do not make these patterns visible to the inside. The separation of inside and outside prevents conversational encounters between media façades and building inhabitants. Media façades which express mainly to the outside however create a new ‘inside’ as urban street contexts – particularly in the dense metropoles of Asia - are increasingly enclosed by media façades, similar to the ‘inside out robot’ Ada (Eng et al. 2003). Media façades can thus not only be examined under architectural viewpoints but also in terms of their implications on urban public space. The often intense and far-reaching visual presence of display-type media façades in particular deserves the question whether such ‘sites’ should not be considered public urban space. This viewpoint seems to be embraced by the city government of the Brazilian metropolis São Paulo, where advertisements were abolished throughout the city’s public spaces starting from 1997. Considered in the framework of Habermas’ critique of mass media’s influence on the public sphere (1962), contemporary media façades can be seen as a degrading influence as they rarely allow for participation.

With architectural concerns for space, interactivity and urban context often absent, contemporary media façades seem to perform as spectacular events in a spectacular society (Debord 1994). Architects seem to prefer to retreat to the domain of the technical challenge, whereas questions of content are left either to artists or, more commonly, to commercial interests. The resulting void can be seen from two viewpoints: either architects and their clients tend choose not to engage with difficult questions of engaging public space, or the urban public tends not to value and engage in offers for interaction. The second viewpoint underlies De Luca and Peeples’ (2002) observation that the contemporary public sphere is less based on dialogue but more on parallel dissemination by multiple parties. Based on this observation, De Luca and Peeples (ibid.) propose the notion of the ‘public screen’ as a metaphor that replaces the notion of Habermas’ ‘public sphere’. The screen metaphor illustrates public exchanges making up the ‘public sphere’ that are characterised by a strong emphasis on public dissemination and seemingly little interest in interaction, with processes of listening or receiving in an audience remaining in a difficult to trace private realm.
6. New conceptions of media façades?

In which context could media façades be sites of open-ended encounters on eye level between humans and buildings? One basic requirement for such a context seems to be that buildings need not solely serve humans, but can also be allowed to serve themselves. Goals pursued by buildings and expressed through media façades will only be viable if they make sense economically. In the expectations of Selkowitz et al. (2003), future façades are likely to pursue goals within an energy economy: Façades should aid buildings to harvest and conserve energy, thereby not only serving humans but also increasing their viability and thus their life spans by wasting less energy. This goal contrasts with contemporary media façades which primarily use energy. To interact more directly with building inhabitants, media façades will likely need to be enabled to connect back to the inside of buildings. Façades may provide a way to give feedback on energy use to inhabitants through a colour code, for example. Such feedback can serve the double use of connecting to the inside and to the outside of buildings, such that media façades inform those outside the building not only about particular energy use patterns, but also about the human occupancy of such buildings.

Façades, being able to connect inside and outside of buildings, are likely to trace human behaviour patterns in the future and may be enabled to directly or indirectly suggest alternatives to inhabitants’ choices. Façades of the future may become sites where buildings, inhabitants and perhaps even an urban public interact and mutually adapt their goals as they search for a shared ‘comfort zone’. This resonates with Pask’s suggestion (Haque 2007) that goals pursued by machines may be of an evolving or changing nature. Rather than new technology, alternative design strategies for interactive media façades seem to require new views on the potential and possibilities of media façades.

Benyon (2008, p. 5) suggests that members of East Asian societies are able to integrate technology into daily lives in a more seamless fashion than is usual in Western European societies, since distinctions between humans and machines, natural and artificial domains are not made in an exclusive and dualist manner. This offers an interesting vantage point for conceiving buildings that employ media façades to express not only trivial response to external stimuli. Instead, buildings may be allowed and enabled to pursue their own aims and enact their particular conceptions of desirable states. Once buildings are allowed to pursue their own ‘interests’, they may, within certain limitations, even be allowed to contradict their inhabitants. One interest of buildings may for example be to maintain their viability (and thus, longevity) by balancing energy expenditure and energy gains. For interactive encounters between
buildings and humans to become possible, humans will have to concede some control over their environments to digitally enhanced buildings. In turn, the reward may be built environments that offer new forms of delight through interactive play and unexpected engaging of their inhabitants, and a reinvigoration of public urban space.

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References