Foundations of a Design Framework for DIY Nomadic Public Screens

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Abstract

This paper discusses a new research-creation project, which proposes to explore the DIY making and deploying of human-scale portable interactive displays for the purpose of supporting both artistic exhibitions and performances. Made from colorful modular panels and electronic components, these interactive screens are meant to serve as mobile digital public displays and nomadic screens for artists, activists and others who wish to stage improvised events in public space. A key objective of this project is to recover, reinterpret and combine historical traditions of interactive media and visual storytelling to inform the design of these artefacts. Accordingly, this paper adopts a media archaeological approach to look at four topoi that might lay the theoretical foundation of a design framework for DIY nomadic public screens. In doing so, DIY making becomes a *détournement* of cultural appropriation in that, here, it is DIY minority cultures that draw on elements of dominant cultures.

Introduction

A digital public display is conventionally understood to be a component of media architecture, that is, a display embedded in a "field that comprises physical structures that utilize digital media to passively or interactively broadcast information to their immediate vicinity". [1] They either take the form of large-size stand-alone screens that rely on LED, LCD or plasma technology or else of video projections that illuminate façades of the built environment under dim lighting conditions.

As is often the case with locative urban technologies, these platforms are typically costly and can take up a significant amount of space. As a result, their design and implementation tends to be driven by infrastructural initiatives that involve collaborations between the public and private sectors, which can include actors as diverse as design practitioners in university environments, curators in art galleries, private-public technology partnerships in urban space and commercial stakeholders in private, semi-public and public settings. [2] Further, they tend to be maintained and controlled either by those who own the space or those who own the content. [3]

While the extant literature suggests that the interests of end users are generally well considered through research methods that include use scenarios, interviews, user studies, participatory design activities and consultative processes, all of these user-centered design approaches, however, present the same key challenge, namely that the "user's thinking can be constrained by what they know". [4] As a result, the politics of design around public screen technologies in the era of ubicomp is often fraught with normative assumptions and conventions of universal use, which determine what forms, content,

purposes and deployment contexts would be optimal. [5]

This, in turn, can place constraints on the possible uses of display-based systems in public space. Research that emerged from practitioners affiliated with the Urban Screen project initiated in Amsterdam in 2005 claim that portable screens might offer solutions to this problem and support access for more diverse publics. [6] Field observations conducted in-the-wild further suggest that a significant proportion of people would prefer interactive digital public displays to be designed as "contraptions or components that would be mobile, portable or easily dismantled and reassembled" and would make it possible to spontaneously stage cultural events in urban space. [7]

Activists, hackers and artists interviewed for this study deplored the fact that although digital public displays are increasingly being embedded in urban settings, they are not openly accessible for people to freely display their own content. Accordingly, many expressed the need to have access to a screen that they could move around for a given project or performance. Most interviewees also felt that it would be important to deploy these outside of tightly managed institutionalized spaces which they argued often "gentrify" and thus restrict free speech. [8]

This art paper explores how electronic artists might be poised to reimagine interactive digital public displays in today's context of DIY economies of making. It proposes to do so by presenting a new research-creation project, which consists in making and deploying human-scale portable interactive displays for the purpose of supporting both artistic exhibitions and performances.

Made from colorful modular panels and electronic components, these interactive screens are meant to serve as mobile digital public displays and nomadic screens for artists, activists and others who wish to stage improvised events in public space. A key objective of this project is to recover, reinterpret and combine historical traditions of interactive media and visual storytelling to inform the design of these artefacts. Accordingly, in this paper, a media archaeological approach is adopted to examine four topoi that could lay the theoretical foundation of a design framework for DIY nomadic public screens. In doing so, DIY making becomes a *détournement* of cultural appropriation in that, here, it is DIY minority cultures that draw on elements of dominant cultures.

The Topos as a Conceptual Approach

What follows presents existing tropes from the past that can be conceptually connected to the present. In keeping with the media archaeological approach, the objective here is to create a series of *topos* to be construed as

abstractions, which suggest possible metaphors to further develop the theoretical aspects of this design framework:

...a persistent cultural formula that appears, disappears, and reappears, gaining ever-new meanings in the process...topoi are building blocks of cultural traditions; they manifest both communities and transformations in the transmission of ideas. [9]

Huhtamo situates this scholarly practice well within the tradition of the humanities, that is, its purpose is first and foremost philosophical and discursive. One could argue that artists, designers and practitioners have always drawn their inspiration from visual and media sources across the boundaries of time and space. An issue collateral to this approach is that some may argue that it supports practices of *cultural appropriation*. Indeed, it is vital to critically reflect on the implications of this throughout this research-creation project. However, here, as we will see, the process at hand is the reverse of what is conventionally understood as cultural appropriation in that it is a DIY minority culture that uses elements of a dominant culture, subverting it at times in order to recast its meanings and impacts. By using historical sources to challenge current conventions of how interactive digital public displays are to be designed, one can evoke ways of reimagining them *within* existing legacies of culture.

Interactive Public Displays Are Ancient History

As elements of visual media culture, public displays have been a common fixture of the *polis* since ancient times. [10] Applying the media archaeological approach to this media platform reveals that large screen surfaces in private, semi-public and public space appear to have an equally far-reaching history of being interactive. For instance, the clusters of graffiti inscriptions that have been found in Pompeii on the façade of most buildings and inside homes are typically dialogical in nature with people responding to one another's comments. [11]

Moreover, onsite observations in the town-city of Pompeii shows that the practice of graffiti was actually widespread among all social classes and in all types of buildings, including basilica walls, which were found to have collections of poetry and prose as well as "extended conversations about the nature of love, scratched by a variety of different hands", while in other pedestrian sites, one could read graffiti of "legal and commercial rhetoric, improvised and crafted poetics compositions, dramatic performances and public readings". [12]

Public Space is Rhetorical

More recently, we find in China a media platform that seems to be formally reminiscent of Pompeii's dialogical walls: *tatzepao* − a public writing medium now known under the moniker "dazibao". Dazibao are big-character posters that were posted in China on city walls in the second half of the twentieth century. They could be published anonymously or signed by their author; as a single piece or as multiple sheets; in small or broadsheet format; as short as a poem or as long as a book; and in designated civic areas or in unexpected locations. [13]

In theory, the content of daziboa was a critique of the political regime in power. However, even though they were rhetorically intended to be vehicles of popular expression produced by contributors of "humbler backgrounds", in reality, masses of daziboa were at first tactically used by one elite faction to mobilize public opinion against another. [14] In the late seventies, one 200-yard brick wall in Xidan covered in dazibao that "attracted readers as well as open-air discussions and speeches" later became known as the "Democracy Wall", which echoes the large scale and pervasiveness of the Ancient graffiti and dipinti practices in Pompeii. [15]

In fact, both public media platforms share three important characteristics. The first, as noted, is that they can be used, either by radical or subversive groups or by an authority in power, sometimes simultaneously; a display wall showing a mix of views or including advertisements provides an example of this. Second, they can appeal to a mass of people moving through public space, yet they have less in common with "mass media" than they do with online platforms because individuals use them to self-publish. And third, they often serve as a catalyst for the production and spread of other unofficial publications, as Downing notes about dazibao. [16]

In the context of interactive nomadic displays, dazibao evoke the idea that public media displays are neutral technological artifacts that call upon cultural practices that are themselves not neutral at all, but are instead inevitably politically charged. Their history serves as a cautionary tale: public space is rhetorical. One must thus carefully think about how it should come to be activated with technologies of representation: nomadic screens may be neutral but their deployment contexts are not.

Technology To Support Emergent Happenings

The unpredictability of public space may be both its most dangerous and most appealing aspect. While public media displays are often used to broadcast programmed content, when they are appropriated, hacked or made available for improvised uses, one longitudinal field study found that they became sites of emergent and generative actions. As a study participant observed:

What struck me the most about these public media displays was that I could never effectively anticipate what was going to happen. It was not only often surprising, it was always surprising. I think that this had to do with the fact that once someone decided to use them, something was bound to happen: whether it was a small thing or a big thing, an intimate gesture or a far-reaching initiative, and whether it was about one's individual interest or the common good, what was being said, always had an element of surprise to it. And this was happening every evening, no matter who the user was. There was always some kind of impact on people, on public space, on passersby, or on those who stood there, compelled to go up and participate too, but often never dared to. It was a context that gave us a sense that anything could happen and that the human element is what made this possible. [17]

Here, a public media display can become a space of possibilities – an affordance driven by human behavior, not by a thing. By virtue of this, added this interviewee, "the unexpected could always be expected". This echoes Rafael Lozano-Hemmer's explanations on the intended impact of his own "relational architecture" artworks:

The real motivation behind relational architecture is the modification of existing behaviour, and generating unpredicted, chaotic, emergent behaviours by creating 'a situation where the building, the urban context and the participants relate in new, "alien" ways'. [18]

As unstructured as this seems, Allan Kaprow similarly detailed the rules of *Happenings* in a list of seven principles. [19] The *Fluxus* art movement then expanded on its meaning by proposing to mingle art and life in the context of everyday venues. While in the utopian realism of the sixties, this took the form of art "as an alternative project to reality…the aim of today's relational work involves opening an exchange space, within a closed artistic world" too often co-opted by institutions. [20]

DIY displays critically draw from these influences; they are to be designed for the purpose of supporting *emergent happenings*. As screen-based media, they also historically refer to the itinerant attractions exhibited in the nineteenth century: "mechanical theaters, moving panoramas, or magic lantern that evoked dioramas". [21]

Dioramas in particular allowed for the interplay of distinct media-cultural forms whereby, for instance, mechanical effects, painted backgrounds, animated figures and the management of light could be combined to achieve unique illusionary effects. [22] What connects the DIY interactive nomadic screens with such older media apparatus that anticipated cinema is their ability to produce visual spectacles that support performances held in temporary venues. In particular, it is how they can do this by including human presence: as Huhtamo remarks, moving panorama and magic lanterns were performed by a lecturer who contributed music or explanations. [23]

Hybrid Practices Combine Old and New

The human dimension foregrounded in the use of the DIY nomadic screens is not only performed, it is also understood as part of a larger, perhaps more holistic relationship to making. In this research-creation project, using becomes a crucial part of making. Design-in-use is seen as a way for DIY maker-performers to explore and develop the potentials of the material, the forms and interactive components that produce emergent content. The democratization of the design process is thus extended to include the experience of using the screens.

To conceptually support this orientation, a *multisited design* theoretical perspective will be adopted as a critical approach that applies multi-sited ethnography to the design and implementation of electronic artifacts within the realm of contemporary making practices. [24] Drawing from Marcus' recent work, the practice of making coupled with ethnographic engagements that reflect on the process of production are instantiated in the micro-context of "para-site events", which provide opportunities to transpose the experimental setting of the

studio or workshop in-the-wild, where the exchange of knowledge takes place with new epistemic partners. [25]

DIY making-performing also draws on the physical and digital integration of design and craft skills known under the moniker of "hybrid craft", in which contemporary making practices make use of traditional craft skill sets in combination with the new design tools made available by digital technology. [26] In the context of this research-creation process, this is achieved by referring to one or more metaphors from the past as constitutive of the present – as with the topoi collected in this paper – in contrast with utopic imaginings of the future as generative of what might otherwise be possible.

For instance, ornamental screens could be proposed as a metaphor for a DIY nomadic screen. Ornamental screens are an antique tradition that originated in China during the Han dynasty and spread to all parts of the world in the past two thousand years. As such, they offer a far-reaching example of the historic interdependency between the local and the global in the political economy of making artifacts. In the nineteenth century, Western artists culturally appropriated folding screens as orientalising decorative artifacts, especially around the time of the Arts and Crafts movement. By referring to this history, the maker-performer can create a *topos* that supports both an ongoing working out of the process of making through appropriation as well as an opportunity for critical reflection that informs design.

Here, the potential of contemporary materials and techniques are used to reinvent old, traditional forms (ornamental screens) and making practices (craft). Indeed, folding screens were invented in China and later introduced to Europe in the late Renaissance period. They were modular, comprising one or more panels made of wood and paper or silk. Wooden screens were often lacquered, painted with gold and decorated with precious stones to dramatize the play of light when one moved around them. This attention to having their scenic backdrops enhanced by changeable atmospheric luminous effects suggests that they may be one of many artifacts that historically anticipated visual storytelling.

A DIY nomadic screen based on this metaphor would aim to critically recover these traditions by recasting and recontextualizing them in today's global world, but it also constitutes a site – in this case, a *topos* – for reflecting on the ethical implications of technology design as a cultural force shaped by the contingencies and politics of its geopolitical conditions. This project thus asks how cultural appropriation can become a means to experiment with temporarily embedding technologies of representation in different social settings.

Conclusion

The four *topoi* described in this paper have been proposed as abstractions that might serve to define the broad strokes of this research-creation project. They suggest that some of the common ground of digital public displays include their interactive potential, their

rhetorical and political purchase, their hybrid character and their status as relational objects that highlight human interventions over human-computer interaction.

Indeed, drawing on historical sources can at times paradoxically suggest new ways of thinking by way of *reimagining*. It is hoped that the use of *topoi* will give DIY maker-performers the freedom to engage in new kinds of utopic realistic visions that may not be entirely practicable, but that nevertheless provide fertile ground for critically experimenting with forms that come to coalesce around the nexus of culture–technology–space.

By laying the foundations of a design framework that will be further developed in collaboration with maker-performers, this work has firmly positioned this research-creation project in a practice-oriented design process that aims to highlight the crucial role that representational practices play in shaping today's world as one where agency is negotiated through access to media and space.

The next phase of this research-creation project consists in creating a user-friendly toolkit and organizing workshops to build relationships with epistemic partners. This would, in turn, present an occasion to determine by what means each maker-performer would see it fit to record their reflexive observations, and it would also foster discussions on other possible *topos* and metaphors that could initiate suitable sites for critical investigations. For what Massey calls the geometries of power – how space and location regulate access, power and control – is a contemporary phenomenon that affects the design and use of technological artifacts at a global scale. [27]

Acknowledgements

References

1. Andrew Vande Moere and Niels Wouters, "The Role of Context in Media Architecture," (paper based on a talk presented at the First ACM Conference of the International Symposium on Pervasive Displays, Porto, Portugal, June, 2012). *Proceedings of PerDis'12*, 1.
2. Peter Dalsgaard and Kim Halskov, "Designing Urban Media Façades: Cases and Challenges," (paper based on a talk presented at the 28th SIGCHI Conference on Human Factors in Computing Systems, Atlanta, GA, April, 2010). *Proceedings of CHI'10*, 2283.
3. Florian Alt, Nemanja Memarovic, Ivan Elhart, Dominik Bial, Albrecht Schmidt, Marc Langheinrich, Gunnar Harboe, Elaine Huang and Marcello Scipioni, "Designing Shared Public Display Networks: Implications from Today's Paper-Based Notice Areas," (paper based on a talk presented at the Ninth ACM Conference on Pervasive Computing, San Francisco, California, June, 2011). *Proceedings of PERVASIVE'11*, 261.
4. Jennifer Preece, Yvonne Rogers and Helen Sharp, *Interaction Design: Beyond Human-Computer Interaction* (New York, NY: J. Wiley & Sons, 2002), 310.
5. Paul Dourish and Genevieve Bell, *Divining a Digital Future: Mess and Mythology in Ubiquitous Computing* (Cambridge, MA: MIT Press, 2011), 17-18.
6. Ava Fatah gen. Schieck, "Towards an Integrated Architectural Media Space: The Urban Screen as a Socialising Platform," in *Urban Screen Readers*, eds. Kate Brennan, Scott McQuire and Meredith Martin (Amsterdam, The Netherlands: Institute of Network Cultures, 2009), 252-257.
7. Claude Fortin, Carman Neustaedter and Kate Hennessy, "The Appropriation of a Digital "Speakers' Corner": Lessons Learned from the Deployment of Mégaphone," (paper based on a talk presented at Tenth ACM International Conference on Designing Interactive Systems, Vancouver, Canada, June, 2014). *Proceedings of DIS'14*, 963.
8. Fortin et al. [7], 960-963.
9. Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge, MA: The MIT Press, 2013), 15-16.
10. Erkki Huhtamo, "Messages on the Wall: An Archaeology of Public Media Displays", in *Urban Screen Readers*, eds. Kate Brennan, Scott McQuire and Meredith Martin (Amsterdam, The Netherlands: Institute of Network Cultures, 2009), 15-16.
11. Rebecca R. Benefiel, "Dialogues of Ancient Graffiti in the House of Maius Castricius in Pompeii," *American Journal of Archaeology*, Vol. 114, No. 1 (January 2010): 65-68.
12. Jennifer A. Baird, and Claire Taylor (Eds.), *Ancient Graffiti in Context* (New York, NY: Routledge, 2011), 171-177.
13. Xing Lu, *Rhetoric of the Chinese Cultural Revolution: The Impact on Chinese Thought, Culture, and Communication* (Columbia, SC: University of South Carolina Press, 2004), 74.
14. John Downing, *Radical Media: Rebellious Communication and Social Movements* (Thousand Oaks, CA: Sage Publications, 2001), 172.
15. Downing [27], 171.
16. Downing [27], 171.
17. Claude Fortin, "Harvesting the Interactive Potential of Digital Displays in Public Space: The Poetics of Public Interaction," (Ph.D. diss., School of Interactive Arts & Technology, Simon Fraser University, Canada, 2016), 148-149.
18. Lozano-Hemmer qtd in Liliana Bounegru, "Interactive Media Artworks for Public Space: The Potential of Art to Influence Consciousness and Behavior in Relation to Public Space," in *Urban Screen Readers*, eds. Kate Brennan, Scott McQuire and Meredith Martin (Amsterdam, The Netherlands: Institute of Network Cultures, 2009), 205.
19. Allan Kaprow, *Essays on the Blurring of Art and Life* (Berkeley, CA: University of California Press, 2003), 62-65.
20. Owen Smith, "Teaching and Learning about Fluxus: Thoughts, Observations and Suggestions from the Front Lines," in *Fluxus and Legacy*, eds. Ken Friedman and Owen F. Smith, *Visible Language*, Vol. 39, No. 3 (2015): 239.
21. Huhtamo [12], 154.
22. Huhtamo [12], 154-159.
23. Huhtamo [12], 364.
24. Amanda Williams, Sylvia Lindtner, Ken Anderson and Paul Dourish, "Multi-Sited Design: An Analytic Lens for Transnational HCI," *Human-Computer Interaction*, Vol. 29, No. 1, (2014): 81.
25. Hadi Nicholas Deeb and George E. Marcus, "In the Green Room: An Experiment in Ethnographic Method at the WTO," *POLAR: Political and Legal Anthropology Review*, Vol. 34, No. 1, (May 2011): 55.
26. Amit Zoran, "Hybrid Craft: Showcase of Physical and Digital Integration of Design and Craft Skills," *Leonardo*, Vol. 48, No. 4 (2015): 386.
27. Doreen Massey, "Power-Geometry and a Progressive Sense of Place," in *Mapping the Futures: Local Cultures, Global Change*, eds. John Bird, Barry Curtis, Tim Putnam, George Robertson and Lisa Tickner (London: Routledge, 1993), 62-63.