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WORKSHOP PAPER

Exploring spatial configurations and the roles of actors, spectators and passers-by in mediated public spaces

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Abstract

This paper presents early findings of a pilot study 'in the wild' as part of our ongoing research 'Screens in the Wild'. It focuses on exploring social interactions and the dynamic spatial configurations mediated by an interactive public display captured during a community event. We observed social behavior and technologically mediated interactions by actors, spectators and passers-by in the 1) direct interaction space surrounding the displays, 2) the surrounding public space and 3) across spatial boundaries (the networked space) over time. We suggest that the properties of the spatial layout play a significant role in framing the type of interactions mediated through the networked displays.

Introduction

The city is increasingly mediated through pervasive and emerging interactive digital technologies. We outlined previously, within the context of public displays, the need to consider more clearly the social, spatial and temporal properties of urban space to successfully implement public display interfaces (1). In this paper we aim to address 1) how public displays may influence the dynamic change of the performer role (actors, spectators and passers-by) and 2) how the building layout creates different interaction zones that influence the nature of the interactions. In order to explore these questions we conducted a pilot study 'in the wild' and observed simultaneous interactions with and around networked public displays and the wider spatial context. We explore the role of the building layout in

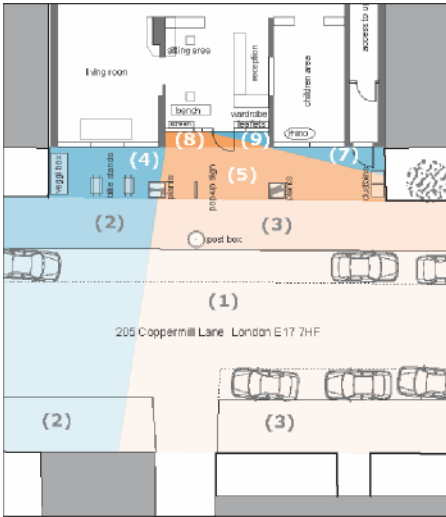


Figure 1. Interaction zones: (1,3,5,8) visibility of public display (VoPD), (2) pavement without VoPD, (3) pavement with VoPD, (4,7,9) enclosure without VoPD, (5) spectator zone with VoPD, (8) direct interaction space.



Figure 2. Window displays: event space (WD1), community notice board, entrance, public display (WD2), kids room with dinosaur (WD3).

framing the spatial relation of the performer to the display and the type of interaction zones and social activities it may support over time. In particular we focus on 1) the type of interactions (direct, wide, networked) and 2) social behavior (social learning, role play) of actors, spectators and passers-by. Our findings are based on observations through image and video capturing and note taking. We discuss these findings in regard to spatial relationships and stress the dynamic time based aspect of these configurations.

Background research

Extensive research has been done exploring the challenges when deploying public screens in urban space. The technical challenges of deploying display technology in urban space have been summarized in Lancaster (2). Mueller et al (3) explored how to attract passers-by to public displays and what it needs to notice interactivity. Networked interactions that go artistic work by 'The Telectroscope' and in a larger context through 'Connected Cities' (4) interconnecting several European cities through an existing infrastructure of urban screens and media facades in public spaces. The role of space, social proximity and full body performative interactions in shared urban spaces have been addressed (5). Through introducing 'urban HCI' (6) the spatial aspects of urban media installations have been described. However, the background research presented has not addressed a number of

highly significant aspects in particular the ones related to the dynamic nature of urban space (7) and their potential impact on the design of public displays. In this paper we will focus on the role of performers and how the spatial relationships framed through the building layout change dynamically during a community event in London.

Setting the scene (The Mill)

The Mill in the East London Borough of Waltham Forest was established in 2011 for the local community and by the local. It defines itself as a hub where various groups meet, residents can share information and services in a self-determined way. The Mill hosted a large event celebrating their first September 6th anniversary on 2012. As part of this occasion we promoted our public display. The event was announced as 'family friendly celebrations' from 4pm until 9pm. During this time the local community gathered and contributed through bringing their own food to share. Various activities for all age groups were offered such as music performances, exhibition or make-up sessions for kids.

The context (the spatial layout)

The façade of The Mill is divided into three display windows (Fig. 2) which attract passers-by for different reasons: Behind WD1 is an event space, WD2 includes the main entrance, provides the screen and is used as the communities notice board. WD3 shows the kids room and attracts with a colorful cardboard dinosaur. The screen is positioned on the left side next to the main entrance to The Mill behind the window (WD2). This part of the building's front sits back from the façade and is roofed (Fig. 2: WD2). This position impacts the screen's visibility and therefore defines the different interaction zones (Fig. 1). The buildings front is in line with other houses in the street. Between the façade and the pavement The Mill has an additional enclosed paved area, which is among other things furnished with bike stands and pot plants. This semipublic space has an impact on the spatial configurations (surrounding public space).



Figure 3. Networked interaction, creating collaborative sound patterns seems to be less interesting than visual patterns or communication through video live feed mediated through the networked display.

The mediator (networked screens)

As part of the 'Screens in the Wild' project we designed and deployed four networked interactive displays; two in East London (The Mill and Leytonstone) and two in Nottingham, UK . The screen hardware consists of a TV sized public display, which is fitted with a touch foil, speakers, web camera and IP night vision camera (1). The foil is attached to a display window and the screen and hardware is sitting in a case behind the shop front. Currently we are running three alternating applications on all four screens. In this paper we focus on 'SoundShape'; an application which allows collaborative music making across all four screens through touching various pads with individual sounds. At any time there are four live video feeds implemented on the bottom of the screen showing the close space around each screen (networked space) (Fig. 3).

Pilot study

The aim of our pilot study was to 1) qualitatively observe actors, spectators and passers-by behavior and interactions during a community event and 2) to explore the spatial relation in regard to our public display and interaction zones, as framed through the layout.

Observations and image capturing

Over the course of the event (4pm – 9pm) two researchers were present at The Mill. Their task s included observations through video, pictures and note taking, whilst attracting as little attention as possible and to become part of the social ecology of the event. Three researchers resided one at each of the other location. Their responsibility was to attract passers-by on their end to engage with users at The Mill across the networked video feed or simply react to the interactions triggered by

performers at The Mill. One researcher assisted remotely with supervising the networked system.

Findings and discussions

Overall, this set up offered rich social, cultural and demographically diverse range of participating local citizens at The Mill, which provides an ideal foundation for deploying public displays. During the event our public display became part of the social fabric and was continuously used by various people taking part at the celebrations. The fact that we facilitated on an existing social infrastructure and special event allowed us to observe interactions without active involvement of the researchers or setting up signifiers or attractors. We were able to observe various activities around the screen (direct interaction space), either directly related to the screen, next to it or inside the building (surrounding public space) as well as through the networked screen to the other screen locations (networked space) (Fig.4).

Direct interaction space

This space (Fig.1: (8)) was continuously occupied by all age groups, whereas children entered this space more often, for a longer period of time and in a higher density compared to all other age groups. People in this space were mostly actors playing with the applications, smaller children not able yet to reach the screen and parents enabling toddlers to touch the screen (Fig. 6). The created sound played a less significant role in this zone whereas the visual attraction through the touch pads or the live video feed triggered performers actions.

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Surrounding public space



Figure 4. Simultaneous interactions: (1) man locking bike, (2) children collecting donations, (3) people inside the building, (4) man observing a group, (5) child watching the live video feed, (6) man looking into distance, (7) group watching the screen.

This includes the inside of The Mill (visible through the big windows) as well as the semi-public

space and the pavements on both sides of the street (Fig.1: (2)) . In the space around the screen people, mostly grownups, were either watching the activities at the screen or chatting with one another (Fig. 1: (5)). Over time the spatial configuration changed (Fig. 5: (1,2,3,4)). This observation allowed us to capture interactions mediated by the screen, interactions not related to the screen and zones which are transient (pavement). In each of the identified zones performers are more likely to change their role from actors to spectators or passers-by. In this zone sound was more successful in attracting performer's attention.

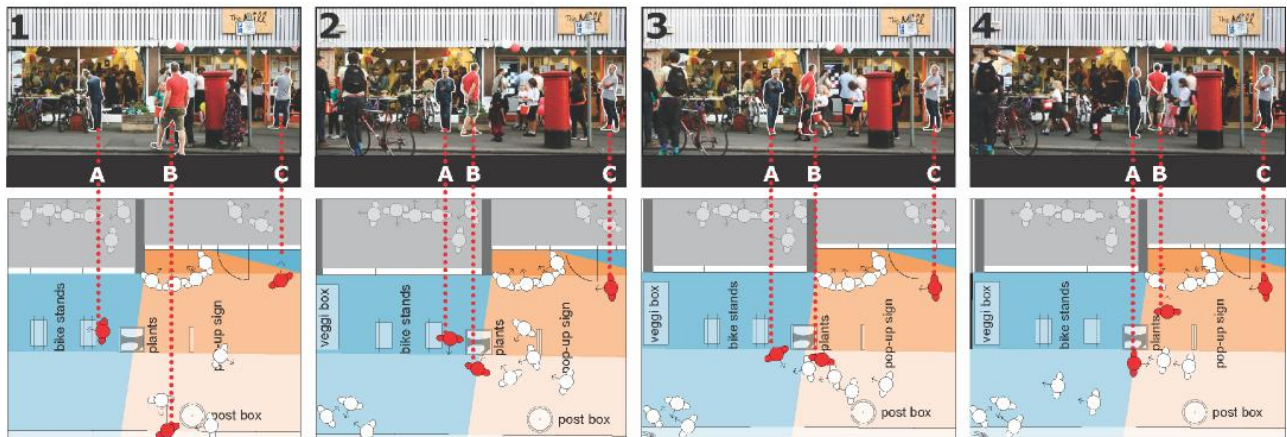


Figure 5. Spatial configurations: dynamic interplay of performers and their roles in between interaction zones; (A) locking his bike, then moving towards the main entrance; (B) joining the scene, slowly moving closer to the display; (C) reading the notice board, turning around and watching the scene.

Networked space

Whereas at The Mill the screen was embedded in the activities of the celebrations and therefore additional attractors were not necessary , the researchers on the remote screens had to actively engage with passers-by to attract them to the screen, or had to engage themselves with performers at the Mill's screen. Due to the small size of the live video feed on the bottom of each screen hardly any passers -by got directly attracted by performers interacting on the other displays. In the case of networked interactions through the 'SoundShape' application actors were keen to interact directly through the video feed with performers on the other displays as well as through 'SoundShape' (Fig. 3). Collaborative sound making triggered interesting interactions. Overall sound generated interest when people were in the public surrounding space, but it was sometimes less effective once people started interacting with and through the 'SoundShape' application.

Social behavior and technology mediated interactions

Constantly children were exploring new experiences the screen intended to provide or not (role play) such as trying to reach the video camera for the live video feed. After a while the same children lost

interest and were

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Figure 6. Social behavior and technology mediated interactions: (1) single experience, (2) social learning from older children, (3) testing, (4) competition, (5) social learning, (6) assistance.

replaced by others of all age groups. Teenager were showing children for instance where the live video camera is placed on the screen (social learning). Others were stepping on chairs to come closer to the speaker and microphone above the screen in order to make their voice heard to users on the connected screens (appropriation) (Fig. 6).

Conclusion

In this paper, we explored social interactions and related spatial configurations in a pilot study ‘in the wild’. We clearly identified simultaneous multi layered behavior and types of interactions (direct, surrounding, networked) in a given spatial setting. These differ in the ways they relate to the interaction zones framed through the spatial layout in which they are embedded and also in the ways in which the interactions are mediated through the public display. The observed spatial configurations revealed a dynamic interplay of performers and their changing roles when moving across different interaction zones. For further studies we are currently exploring social interactions and the spatial setting in between several networked public displays over a longer period of time. In particular, we want to explore how mediated encounters across the spatial boundaries can influence the type of interaction zones.

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References

- [1] A. Fatah gen. Schieck, H. Schnädelbach, and A. Penn, „Research in the Wild: Exploring the potential of Networked Urban Screens for Communities and Culture“, 2012.
- [2] O. Storz, A. Friday, N. Davies, J. Finney, C. Sas, und J. Sheridan, „Public Ubiquitous Computing Systems: Lessons from the e-Campus Display Deployments“, 2006.
- [3] J. Mÿller, R. Walter, G. Bailly, M. Nischt, and F. Alt, „Looking glass: a field study on noticing interactivity of a shop window“, 2012.
- [4] www.connectingcities.net
- [5] A. Fatah gen Schieck, Briones, C., & Mottram, C. “The Urban Screen as a socialising platform: exploring the role of place within the urban space”, 2008.
- [6] P. T. Fischer and E. Hornecker, „Urban HCI: spatial aspects in the design of shared encounters for media facades“, 2012.
- [7] B. Hillier und J. Hanson, “The social logic of space”, Cambridge, 1984.
- [8] S. Reeves, S. Benford, C. O’Malley, und M. Fraser, „Designing the spectator experience“, New York, 2005.