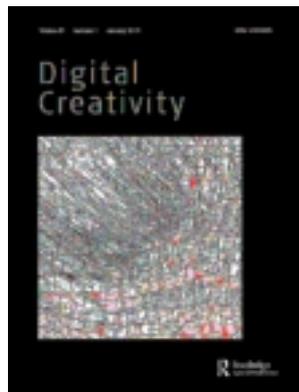


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Provoking the city—touch installations for urban space

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Provoking the city—touch installations for urban space

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Abstract

How should one design a media art installation on a public multi-touch screen? Our article presents a case study of the installation *At Hand*, which was produced for the Media Facades Festival Europe 2010. In the installation touch became the interaction metaphor for an embodied encounter. The installation pilot is understood as a place in which two research projects come into contact with each other while approaching the installation from the point of view of their disciplinary framings. Together these projects enquire into how a multi-touch screen in a public outdoor location is able to function as the site for an interactive narrative, and question how to foster the transition from spectator to participant at the interface. The first part of the article describes the development of the narrative concept for *At Hand*. In the second part, the usability of the *At Hand* pilot is addressed in a field study.

Keywords: media installation, multi-touch, interactive art, interactive narrative, city space, Media Facades Festival, participation, affect

1 Introduction

For the last ten years, site-specific new media art projects, large-scale projections, wireless media and various participative structures have become part of the experiential landscape of cities. Some of the most recent public media art installation projects include the Urban Screens events at Melbourne 2008 and Toronto 2010, as well the Media Facades Festivals at Berlin 2008 and Europe 2010. These projects have explored the potential of urban architectures to embed media art both within existing public displays and within temporary sites created for artistic interventions.

1.1 Interventions into city space

In the history of public media art, some interventionist events are often remembered, perhaps because they succeeded in somehow provoking the city. Thus, for instance, one of the first participative experiments in public telecommunications, *The Hole in Space*, 1980, by Kit Galloway and Sherrie Rabinowitz, managed to connect audiences in Los Angeles and New York by means of a video-conferencing set-up placed in a street-level window in each city. As the project temporarily reconfigured a public space into an open

communication channel, it introduced the possibility of difference in how the lived space of the city was perceived.

In the works of Krzysztof Wodiczko and Rafael Lozano-Hemmer the question of how to make the memory of the city, including what it has repressed, available for the public was of key importance. In Wodiczko's approach, large-scale image projections were used to produce a reading of the city space, which outlines the hidden ideological underpinnings of the site. In Lozano-Hemmer's 'relational architectures', the concept of memory is approached in a more poetic way as the actions or the embodied presence of the audience participate in the production of the visual narrative, which connects the participants to the histories of the places in which the installations are situated. In the series *Body Movies* the shadows of the audience are used to reveal images which address the past lives of the residents.

In 2001 the Chaos Computer Club turned the façade of the House der Lehrers building into a giant interactive computer display for playing animations and for participatory messages. Because of the visibility of the building and the long-term span of the project, which was running continuously for almost six months, *Blinkenlights* became an icon of public media art and now exists as a format including open source software. As such it has been imported to different locations, most recently to Toronto.

These different approaches to media art interventions have something in common. They managed to produce public sites which carry cultural significance while engaging their audiences. One of the particular concerns in the *Urban Screens* project is the question of how existing public displays in urban places could be turned into socially and culturally meaningful sites. As Miriam Struppek has suggested, the screens in general have the potential to be 'visualisation zones', which could connect local audiences to networked technologies and thus cultivate a sense of community and reach a new audience, as well as serving as sites for collaborative

content production and memory-building (Struppek 2006).

1.2 Use studies at the multi-touch screen interface

In the next few years, we are likely to see the emergence of public multi-touch screens, which will become part of the urban informational infrastructure. For a new media artist, these screens appear as exciting platforms for developing new vocabularies of interaction. However, there is still very little experience of how they could be used as sites for artistic intervention in public urban areas. How could these sites be made 'socially and culturally meaningful sites' within contemporary urban life?

The numerous use studies of large-screen multi-touch interaction may provide suggestions as to how multi-touch interaction in general becomes socially organised. These studies frequently emphasise the understanding of the multi-touch screen as a social space for collaboration and co-learning (Jacucci *et al.* 2010b). However, from the point of view of media art they provide a limited understanding of how multi-touch screens might function as spaces which might provoke their audiences (Kuikkaniemi *et al.* 2011), as the use studies most often focus on the use of the screen space in situations in which the screen contents are being browsed.

From the point of view of this article, the most interesting use study of a multi-touch screen as a social space took place in Helsinki in the summer of 2007, when a group of researchers at the Helsinki Institute of Information Technology built a large-scale multi-touch screen into an existing shop window in the city centre of Helsinki (Peltonen *et al.* 2008). The *CityWall* enabled its users to organise, resize, rotate and move public images of the city on a zoomable timeline. The ethnographic study which followed the use of the space paid attention to how the public display, as an intervention into the daily life of the passers-by, was noticed and approached, and how its use was negotiated in different group situations. The findings emphasised the social and collaborative aspects of the use situations, and the role of learn-

ing by example. In the use study particular attention was paid to the parallel use of the screen space, the playful activities which tested the limits of the design, and the conflict management on site. (Peltonen *et al.* 2008)

1.3 *At Hand* pilot as the site of two research projects

The *CityWall* later became a permanent installation setup in the Helsinki city space. In 2008 it was launched in another location and with a new interface (Jacucci *et al.* 2010a). In 2010 an opportunity emerged to create an experimental media art installation on the *CityWall* in the context of the Media Facades Festival Europe 2010. *At Hand* is a pilot for an interactive installation on the *CityWall*. It stages an encounter between the participant and a series of anonymous but particular hands which appear on the screen. The installation questions how we should relate to those others who are part of our everyday urban experience, but whose presence we fail to acknowledge among our daily routines. It calls for an acknowledgement of the genuine humanity of the other by means of an interactive narrative which incorporates the element of touch. The *At Hand* pilot premiered on 27 August 2010 on the *CityWall* as a joint event for the Media Facades Festival Europe 2010 programme and the Night of the Arts Helsinki Festival programme and it remained available for a field study by a group of design research students of Aalto University until 24 September 2010.

The implementation of the first pilot version of *At Hand*, which we will discuss below, remained



Figure 1. *At Hand* installation at the *CityWall*.

partial and did not fulfil all the objectives which were considered essential for the artistic concept. In this article the pilot functions as the site in relation to which two separate research projects pursue a dialogue by considering it from the point of view of their disciplinary framings. First, the *At Hand* pilot is part of the ongoing artistic research by media artist Heidi Tikka on participative, site-specific and affective media art installation techniques. Within the framing of media art practice, *At Hand* sets out to explore the possibility of an interactive narrative event which incorporates the city space, the multi-touch screen as a representational and performative medium, and the series of gestures associated with multi-touch. As an interactive narrative event *At Hand* is meant to provoke its audience. Second, the pilot served as the site of a field study for the Design Research Course at the Department of Design of Aalto University School of Art and Design. As such, the research exercise by the students should be seen in the continuity of the use studies at the *CityWall* interface as one of the authors of this paper participated in developing and carrying out its first studies.

The structure of the article reflects this division of work. We hope that by bringing these two research projects into contact with each other on the site of the *At Hand* pilot, we will contribute to the emerging problem field related to creating media art for public multi-touch screens. We will also suggest that this contact will generate new research problems for each of the projects. From the point of view of media art, the design research approach may function as a form of reality test which identifies the problem areas in the usability of the installation pilot and labours for their solution. From the point of view of design research, the artistic approach to creating a narrative event on the multi-touch screen may open up new perspectives for looking at the relations between narrative content and social interaction in multi-touch environments. It is important, however, to point out that these two research projects should not be seen in a relationship of continuity to each other. Towards the end of the article we

will reflect more specifically on the boundaries which limit the perspectives of these framings on each other.

2 The concept of *At Hand*, affect and gesture in a public place

Conceptually, *At Hand* treats touch in a way that brings together the recent politics of the city space, the embodied urban experience, and touch as a relationship to the other. It explores the experiential space in which the narrative builds on the philosophical thought of acknowledging the embodied being of the other, while the interaction design investigates ways to introduce this subtext to the screen space of the multi-touch technology.

2.1 Touching a touch interface

One of the starting points for the conceptual development of *At Hand* was the question of how to think of touch in relation to the touch interface. Several media artists, including Christa Sommerer and Laurent Mignoneau, Stahl Stenslie and Kirk Wolford, Agnes Hegedus, and Ken Feingold have experimented with tactile interfaces. However, as both Peter Weibel and Erkki Huhtamo remark, institutionalised cultural practices have an ambiguous relationship to touchability: in museums and art exhibitions visitors are most often forbidden to touch the artefacts. A cultural barrier needs to be broken in order to encourage people to touch (Huhtamo 2007, Weibel 2007).

As Huhtamo's media archaeological account suggests, in artistic experimentations on tactility, the aim is not to exclude other senses but to rearrange the conditions of the experience in such a way that the tactile experience becomes heightened (Huhtamo 2007). This understanding of tactility resonates with the conceptualisation of sensory experience by the philosopher Maurice Merleau-Ponty. In *Phenomenology of Perception* there is a section in which he discusses the experience of following a dubbed film, which the spectator has to reconstruct experientially in order to make sense of it (Merleau-Ponty 2002, pp. 272–273). This experience could be related

to the challenge a media artist encounters when considering artistic strategies for rearranging sensory experience in an installation, for instance. Merleau-Ponty later refers to this example in order to argue for the groundedness of the sensory experience in the body, and the concept of the body schema as the unity which not only enables the transposition from one sense to another to take place, but also the sense of unity with the object to occur (Merleau-Ponty 2002, pp. 272–273).

The idea of the possible transpositions in the sensory experience is important, because the conceptual development of *At Hand* began with the question of how existing multi-touch screens afford touch as a sensory experience. In the first observations on existing multi-touch screens, touch as an embodied experience and as a relationship to the other seems to be missing. The emerging conventions in multi-touch interaction seem to aim at immediacy, and tend to overlook touch as sensual embodied experience. As long as multi-touch gestures are directly related to the operations of managing documents, there is very little space left for conceptualising touch in terms of one's phenomenological relationship to the other.

With *At Hand*, the idea was to investigate the experiential space in which the narrative would build on the philosophical thought of acknowledging the other through touch. In the installation touch is understood not as an instrumentalising gesture aiming at the control of its object, but as a gesture towards the other. In relation to the screen space, the central design question was to consider how representational, visual means, as well as interaction models based on existing multi-touch gestures, could be used to convey the idea of relational, sensual touch. Touching a touch screen is not a particularly sensual experience to begin with. The aim was not to simulate an embodied experience of touch, but to consider how touch screen interaction could be made affective within the heterogenous space of images, narrative and multi-touch interaction. The concept of haptic cinema, which Laura Marks has recently discussed, was of great importance. For Marks,

the narrative cinematic shift from an optical to a haptic image, which often takes the form of a close-up and lets one focus on the material qualities of both the object and the medium, activates a multi-sensory and embodied relationship to the image (Marks 2000, pp. 170–176). The narrative shift can thus be seen as the articulation of the gap which, for Merleau-Ponty, exists between the visual experience which is capable of perceiving the world as spectacle and tactile experience, which ‘adheres to the surface of the body; we cannot unfold it before us, and it never quite becomes an object’ (Merleau-Ponty 2002, p. 369, cited in Marks 2000, p. 148).

2.2 The ethical relationship to the other

The questions about the relationship to the other—and of the ethics of acknowledging the other—seem particularly acute in contemporary Helsinki. Recently, the arguments for strict authoritarian policies against the Romani beggars in the streets of Helsinki have hardened. While these people, whose vulnerability makes them targets for racist attacks both in their home countries and elsewhere, remind us of the importance of responsible integration policies in Europe, they also figure in the contemporary urban landscape as the abject others whose life and experience most of us would prefer to forget about. *At Hand* set out to question of how we relate to others whose life is different from ours. In the light of the hardening attitudes towards the poor and the vulnerable, do we risk losing our ability to encounter the other and acknowledge the particularity of the other as a unique human being?

The idea of the other has had, since Hegel, a long history in Western critical and philosophical thought, and is generally understood as that constitutive aspect of a system which remains outside it, but against which the system produces its self-identity. The constitutively violent processes of othering have been critically investigated from several philosophical positions, which also question how the philosophical thought itself produces its other. Critical feminist and post-colonial thought has drawn significantly on this discourse.

If the violent process of othering is in play in intersubjective urban relations, how can we address this violence and work productively in relation to it? For the philosopher and psychoanalyst Julia Kristeva, ‘the foreigner’ is that repressed element of ourselves which we project towards the image of the other. The experience of the other is linked to the archaic narcissistic self, which protects itself by projecting outwards that which it experiences as dangerous or unpleasant in itself. In order to break free of this destructive psychodynamic process, we need to recognise the foreigner within ourselves (Kristeva 1991, pp. 183–195, 1–40).

Perhaps, however, the task that *At Hand* sets out for itself, the finding of a non-violent trajectory for the acknowledgement of the other, resonates most significantly with the philosophy of Emmanuel Levinas, in which the Face of the Other, the ethical relationship to the other, is the beginning of philosophy. The relation to the Face is the relationship to what is weak, vulnerable, and marked by the possibility of violence and death, and at the same time a relationship to a calling, a requirement for transcendent responsibility. The relationship to the other is not a symmetrical, intersubjective relationship. In the ethical relationship the responsibility for the other is infinite and thus involves the question of justice (Levinas 1998, pp.103–121). As living, speaking subjects, we are constituted by the process of becoming, which passes through becoming responsible for the other: ‘in consciousness thus conceived, there is an awakening to humanity’ (Levinas 1998, p. 112).

If it is true that we tend to turn away from those whose life and experience is foreign to us, could new media technologies be used to re-configure the ‘missed encounter’ in order to give it a second chance? In *At Hand*, the touch screen became the interface for restaging an imaginary encounter which does not take place in the reality of contemporary urban life.

2.3 Affect and gesture

In order to build a narrative relationship between the gesture-space of the multi-touch screen and

the urban space, we explored the gestures of waiting. Quite a bit of waiting takes place in urban spaces, in different social contexts. These contexts and the bodily responses to them can be understood as micro-spaces, which inform particular body languages or ‘micro-gestures’. To approach waiting as a micro-space and as an embodied experience is to approach it through the concept of affect. As Nigel Thrift has remarked, there is a growing tendency towards engineering affects to make use of them politically. One of the strategies of affect engineering is the conceptualisation of the body in terms of ‘micro-geographies’ or ‘body languages’. The formalisations of these languages can be, and increasingly are, fed back into the design of urban spaces (Thrift 2008, pp. 182–187).

Seen in this way, the concept of affect draws on the work of Baruch Spinoza, who perceives affect as part of the structure of an encounter. In the philosophical outline of affect by Spinoza, the focus is on the relationship between individuals, who have the capacity to affect or be affected. In other words, even if affects have a relationship to the emotions of an individual, they are not identical to them. Rather than individual, affects are relational and emergent (Spinoza 1996, pp. 68–113, Braun and Stenner 2001, Massumi 2002, pp. 23–45, Thrift 2008, pp. 171–182).

The conceptualisation of affect, which perceives it as an integral aspect of a spatial, social, technical and embodied configuration, is central to the idea of *At Hand*. The affectivity of waiting often becomes visible as a series of unintentional, semi-conscious or learned patterns of gestures by which our bodies try to balance between the incentives of simultaneous mobility and immobility. From a spatial point of view, these micro-gestures can be understood as the continuous articulation and the negotiation of the boundary between the body, which is trying to maintain a certain readiness for motion, and the city space, which imposes certain material and social coordinates on the situation of waiting. The micro-gestures could be perceived as the visible traces of affects in the city space.

2.4 *At Hand* as a narrative piece

The narrative of *At Hand* can be framed as a series of thematic questions that address the politics of embodiment and space. How can we make visible the traces of affects in city space? How do people perform their particular ways of being, or waiting, in public places? How can we reframe the encounter with the foreign other in such a way that it is given a second chance? How can we set up a different and less hostile trajectory for the reconfigured encounter?

Conceptually, a publicly located touch screen seems to afford two modalities for the narrative. First, as a public display it provides a place for visual or audiovisual representation. Second, as an interactive screen, it provides an additive performative dimension: an opportunity to create a participative event based on gesture and touch. These two modalities seem equally important. The screen has to serve as a meaningful visual element in the general landscape of the city, even when no one is paying attention to it. And if its potential as a touch screen is taken into account, it has to serve as the site for embodied participation, in which meaning is constructed in terms of multi-touch interaction.

The narrative of *At Hand* is in two parts. The first part approaches the different social realities of urban life by representing different embodied and particular ways of being present in the city space. The second part of the narrative consists of the restaging of the ‘missed encounter’ as an interactive event. One of the key questions in the narrative development of *At Hand* is how to organise the transition from the first to the second narrative part. From the point of view of interaction design, what is at stake in this transition is that the spectator of the representational part of the narrative has to be turned into the participant in the interactive part of the narrative. A touch screen is not able to respond to the spectator until the spectator has become a participant and become involved in touch screen interaction. Our plan was to use a webcam as an intermediary technology that would make the system aware of the presence of the spectator and respond with a change in the moving image.



Figure 2. Hands on screen, first performing idle gestures.



Figure 4. Hands open towards the participant when stroked.

The final *At Hand* narrative can be divided into four events. First, there are the anonymous hands, performing being-in-waiting as patterns of small gestures (Figure 2). Second, when the system becomes aware of the presence of the spectator, the pattern of the hand movements will change to communicate that awareness back to the subject, who has now become a participant in the narrative (Figure 3). Third, when the participant strokes the image of the hands on the multi-touch screen, the hands will open gradually and reveal a close-up image of a small section of the hand (Figure 4). Fourth, the participant is able to explore the details of the hand by stroking the image (Figure 5).



Figure 3. Hands then becoming aware of the spectator.

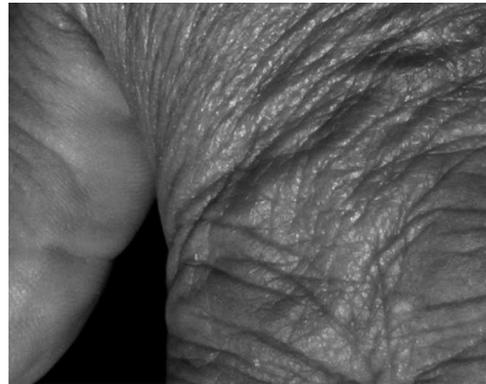


Figure 5. Close-up of the hand.

The participative filming process took place in summer 2010. People living in Helsinki, including many Romani residents, were filmed. The filmed materials constituted a moving image archive which aimed at making visible the diversity of people and their lived experience in the city. People were asked to perform in front of the camera and imagine how they feel in their bodies when waiting for something. Often the camera was just left running to capture whatever affective motion the hands would perform.

2.5 Adapting the narrative of *At Hand*: the *CityWall* as a social space

The pilot version of *At Hand* was produced for the Media Facades Festival Europe 2010 and the

existing *CityWall* multi-touch screen in the city centre of Helsinki. The concept of *At Hand* is not site-specific in the sense of addressing the site of the *CityWall* specifically. Discursively, the work is situated in Helsinki. In general, the site of the *CityWall* could be described as ‘being in progress’. The use of the area depends on seasonal conditions: during the warm summer months the area becomes enlivened, whereas in wintertime it serves merely as a walking route for passers-by. The implementation of *At Hand* on the existing *CityWall* multi-touch screen shaped the resulting media art installation in more than one way. Since the location was given, the installation became part of the existing social space in Lasipalatsi Square, where the *CityWall* is situated. Second, the display technologies of the *CityWall* shaped the visual appearance of the installation.

In the adaptation of *At Hand* to the *CityWall* the transition from spectatorship to a participative position became the critical question. We planned to use an embedded webcam to track the presence of the spectator, to which the moving image would respond. However, it was not implemented. In addition, we thought of two likely use scenarios. As the pilot was part of the Media Facades Festival, we expected visitors who would come to the site with the expectation of encountering an interactive installation with a touch interface. Those visitors could be thought of as already performing in the participant modality. The second use scenario was more difficult. To foster the transition from a spectator to a participant, the spectator would have to discover the installation or follow the actions of the others already at the interface. (Peltonen *et al.* 2008, Jacucci *et al.* 2010b).

2.6 The dynamics of the multi-touch interaction and the screen layout

The most important idea for a gesture that we elaborate with is the stroking of the screen. The gesture of stroking usually belongs to the domain of human affective relations, particularly those which are the most intimate. Stroking is a gesture of care. In *At Hand* the stroking of the screen is used to suggest the possibility of an affec-

tive relationship, but it also points to the absence of the other, and the artefactuality of the arrangement. The gesture of stroking condenses the play of presences and absences in the installation.

The interface of *At Hand* was designed to be simple in order to keep the threshold of involvement low. This was accomplished by introducing ambiguity to the multi-touch functionalities. At the beginning of the encounter, the participant may stroke the screen or just place his or her hand over the image; any gesture which suggests skin contact will be effective. Thus, the idea of stroking is gradually introduced to the participant until it becomes the exclusive functionality in the last event, in which the participant explores the close-up image of the hand. The design principles follow the findings of Peltonen *et al.* and Jacucci *et al.* on the importance of keeping a low threshold for initial involvement and the gradual building of the functional modalities in the flow of the experience (Peltonen *et al.* 2008, Jacucci *et al.* 2010b). In publicly available displays, the interface should be immediately available through functionalities which are self-explanatory and which take into account the fact that the skills of the casual users may vary significantly. (Sandnes *et al.* 2010)

The screen measures 240 by 100 cm. The resolution of the entire area is 2,000 by 760 pixels. The display uses two data projectors for a rear projection setup on a window glass surface. Infrared lighting and cameras are used for the finger tracking. Because of the shape of the screen and the visible seam between the two projections, the horizontal area is divided into four vertical sections which display a series of four pairs of hands. Even though the existence of several parallel events does not necessarily support the idea of a unique encounter, the parallel events suggest the multiplicity of possible encounters, as well as the social experience of sharing the experience of a re-enacted encounter. In addition, the vertical sections provide a visual element for the spectators: the way in which the sections alternate between the image of the hands against the black background and the lighter close-up image of the skin constitute a variable rhythmic pattern.

3 Field study and experiences

After the Media Facades Festival ended, the School of Art and Design of Aalto University carried out a research course in the autumn term focused on masters students in various fields of design. The main objective of the course was to carry out field research about the *At Hand* installation. The students employed various methods—interviews, questionnaires, observations and experiments—in order to understand the relationship between the public, the physicality of space and the installation. In particular, the focus was on people's experiences of content and technology.

The student fieldwork helped to reflect on the *At Hand* installation from different perspectives. Design research and field studies can play an important role in understanding the urban space and its life and the experience people have, including limitations and new opportunities. We have found four major themes and factors of interest concerning the *At Hand* installation that can help in discussing the 'narrative' and 'spect-actor' approaches introduced in Section 2.

3.1 Attraction and curiosity

Our first findings are the reasons for people's motivation to engage with a site and installation. It may relate to the presence of other participants (Peltonen *et al.* 2008), aesthetics or the spatial dimensions and narrative of the installation (Jacucci, G., *et al.* 2009). These can trigger people's attraction and curiosity about the installation. People make sense of places through the characteristics and arrangements of the tangible space, the constitution of elements such as colours, forms, material and proportions, among others (Viña 2010).

The observations of the *At Hand* installation suggest that its physical qualities lacked visible clues that could have attracted people's curiosity. While the content of the installation had a very specific narrative and way of using touch, the physical installation did not use any particular design, since the display in the shop window blended with other windows and did not invite users explicitly. The spatial and physical design setting of the installation did not break with the familiar every-

day city environment. Most passers-by did not notice the installation while it was working. *At Hand* was easily ignored, partly because it was situated between advertising screens, making it difficult for people to realise its use. In this sense, the physical qualities of the *At Hand* installation in relation to the public site lacked particular clues that could have made the work stand out and be highly visible for the public to explore.

We found that the *At Hand* installation produced a place for awakening people's curiosity through other people's behaviour. People using the installation attracted other individuals, encouraging them to use it, echoing earlier studies (Peltonen *et al.* 2008). The following anecdote, picked from students' work, describes these issues:

One lady slowed down as she passed the installation and we engaged her in conversation. . . . She told us she had passed through the place every day but had not noticed its presence. She looked very interested in the installation because she stayed and watched the piece for a long time.

In this sense, one could say that a temporary crowd of people in a public place may awaken curiosity and attraction in other people.

Once people interacted with *At Hand* the content elicited curiosity and motivation to explore further. People felt curious when encountering the closed hands on the screens. One woman expressed curiosity about the different textures on the skin; one could appreciate scars and rings, and at the same time ponder about whose hands these are.

3.2 Engagement of spect-actors

The previous section described motivation and curiosity in people approaching the *At Hand* installation. This section concentrates on engagement, as a deeper and subsequent phase in the relationship of the participant with the installation (Viña 2010).

Engagement usually refers to involving and evolving interaction. Generally, engagement is tackled by 'walk-up-and-use' systems, which need to be very self-explanatory for first-time or one-time users who need no prior introduction or training (Jacucci *et al.* 2010b). Moreover, while retaining ease of first use, installations should

structure complexity in a scaffolded way, unpacking the functionality and content gradually to have a good balance between challenge skills. (We see similar phenomena in accounts of flow; cf. Csíkszentmihályi 1990).

According to the study, while the narrative elements of the installation were creating engagement people experienced some issues that related to the responsiveness and accuracy of the technology and accountability, trying to understand the effect of their gestures.

On the other hand, we found that, regardless of these issues, people became engaged through social interaction created by the work. When people were asked questions about and at the installation they answered and thus became involved with the installation. We have found that the role of the *At Hand* installation as a producer of a social space in which people interacted with other people rather than with the installation work was relevant. The following example taken from the student's work shows how the narrative elements contained in the media proposed by the work were also very important in engagement:

While observing the installation she noticed little details, like the colour of the hands, also the age and whether the hands were female or male, or a representative of the working class by noticing dust under the fingernails or rings on the fingers.

Following this, art installations and happenings in public spaces can open an array of doors for thoughts, feelings and dialogue. They can engage the public through intellectual curiosity and inquiry by the nature of the artistic work. The *At Hand* installation created a site for questioning and pondering rather than being informative. It created a multi-layered interactive space for dialogue and exchange between people and between individuals and the subject of artistic work.

Multi-touch is innovative because it allows multiple hands and users to manipulate the same surface. Parallel interaction is beneficial in that it fosters social learning and social experience and creates an attractive honeypot effect (meaning people being attracted by other people). The social context creates the premises for the partici-

pants both as spectators and actors in the narrative of the *At Hand* installation. Hence, the notion of spect-actors (Coutrix *et al.* 2010). Analysis and frameworks for installations or performing media anticipate some of these themes, pointing to the multiple roles of the user as operator, performer and spectator (Dalsgaard and Hansen 2008). Jacucci *et al.* (2005) point to a variety of elements characterising interaction as performance, including the structural relationship between expression and experience. These frameworks ascribe to the user an important role in the construction of the resulting performance.

3.3 Reflections and emotions from narrative elements

In this section, we will describe how narrative elements elicited reflections and emotions. The narrative elements are of different types in *At Hand*. First we can consider images and videos. The sequences with which one image or interaction follows another one can also contain a narrative aspect. Most interesting in *At Hand* is the narrative element created by the way in which the participant is an actor performing a representation of touch as a relational vehicle. In Vito Acconci's words, the viewer is a victim (Acconci in Jacucci and Wagner 2005, p. 196) of the artist's narrative that can be experienced by the viewer him/herself or by another spectator. In the field study it is clear that the narrative elements worked well in eliciting emotions and reflection, especially given the particular strategy of the artist to use touch as an integral part of the narrative. Touch was not just a user interface tool to access and play the content, but was a carefully designed act in staging the experience.

In this sense the passer-by first needs to notice the installation, then they need to be attracted to become participants in the ongoing performance of *At Hand*. Engagement created by the narrative and social aspects can then elicit emotions and reflections in participants as actors or spectators (Viña 2010). Students conducted interviews and questionnaires about the content of the *At Hand* installation. People's responses state that they became reflective about the content, making

them comprehend more about the subject matter, the beggars, their background and their culture. The field study demonstrated that the *At Hand* installation was effective in its narrative strategy that addressed a social concern contextualised in the public and urban space.

3.4 Exploring physical staging opportunities

Observations, interviews and questionnaires are traditional practices in research which were carried out during the research process of the *At Hand* installation by the students. Nonetheless, we encouraged students to utilise their experience of making and creating new environments that could partly transform the installation and, at the same time, help them to discover new ways of inquiry. We want to emphasise the role of the designer, the practitioner's creativity as a tool for knowledge creation and sense-making in the context of explorative and experimental design research. Students utilised their imagination to modify the *At Hand* installation in a visible way. They employed techniques inspired by invisible theatre to observe the reaction of people approaching the installation (see Figures 6 and 7).

Students also made use of objects such as props, effectively staging different affordances and giving clues about the interactivity of the work. This also worked for forging boundaries around the installation. For example, one group utilised a chain which was found in the site environment. Students tried to attract attention by narrowing the walkway



Figure 6. Students acting and interacting with the installation to attract people.



Figure 7. Students acting and interacting with the installation to attract people.

and thus altering the circulation of people in the space. However, they realised that the use of the chain could have been intimidating to people because it can be regarded as aggressive material. On the other hand, the group wanted to create a high-impact change within the architectural environment. On the same lines, another group borrowed chairs from a nearby bar to create a scene in front of the *At Hand* installation. This was an attempt to catch people's attention by interacting with the chairs and by appropriating the installation space (Figure 8).

Acting, interacting and creating new spaces and situations in the *At Hand* installation were carried out by theatrical approaches. The stage was built through the manipulation of objects; they were devices imposing constraints and opportunities for attracting more people, facilitating participation and changing the experience of



Figure 8. Making use of objects for scene creation to catch people's attention.

the installation. The presence of people at the *At Hand* installation was used to attract and encourage people to experience the work. Nonetheless, the students also provided other types of ideas for improving the physical qualities of the installation; clues that could guide people to use and make sense of the installation. Students explored how to change the physical context to change the installation space into a more visible and attractive setting, but we maintain that these physical elements, in the spirit of the *At Hand* artist, should be designed and used to serve the narrative.

Other ideas on the visibility of the *At Hand* installation were also conceived and drawn. Figures 9, 10, 11 and 12 are images created by the students in which they suggest various



Figure 9. Suggestion for a visible setting at the *At Hand* installation.



Figure 10. Suggestion for a visible setting at the *At Hand* installation.



Figure 11. Suggestion for a visible setting at the *At Hand* installation.



Figure 12. Using sound on site can also alter the experience of the space and it may trigger people's curiosity.

examples of how the installation setting can be improved in an outstanding and visible way.

The students explored the interaction with the public in real context situations facilitated by objects and their imagination with experiments and interventions. It facilitated a series of understandings and experiences that would not be possible with only traditional inquiry foundations and without the practice of art and design. Thus, the role of art and design practice is relevant. The experiment of the students at the *At Hand* installation was research activity, as in the field of traditional science, and the intervention was the means by which the research was observed: interacting and intervening with the subject matter that was of concern (Binder and Redström 2006, Brandt and Binder 2007, Viña 2010).

4. Reflection on the field study and conclusion

The field study that inquired into the usability of the *At Hand* pilot points to a number of problems in the first implemented version at the *CityWall*. These problems were anticipated. As is often the case with pioneering work, the pilot was produced with too few resources, which resulted in problems with coordination, partial implementation and insufficient technical support, which for the users appeared as performance deficiencies. As the field study suggests, the critical point which, from an artistic point of view, appears as disruption in the narrative is the spectator-participant transition. As stated, how can the spectator understand the potential of becoming a participant if there are no affordances suggesting interactivity and if the only means for designing such affordances are embedded into the multi-touch screen technology? At the moment, the only effective way to foster this transition seems to be the power of the social example, unless one wants to add other elements to the multi-touch screen. Of these, the camera registering the presence of the spectator and the element of sound, suggested by the students, seem most potential.

The article opened with a discussion of certain public media art installations. These were chosen not only because they are historically relevant, but also because certain thematic affinities can be found between them and *At Hand*. Like them, *At Hand* explores the possibilities of mediated affective social connection and pursues a narrative event, which brings the audience into contact with the repressed aspects of their city. However, unlike the reception of these historical examples, the social reception of *At Hand* remained partial. Why? First, a question has to be asked about how the reception of public media art is rhetorically framed in general. In most cases, the reception of an installation is carefully staged by photographs, which stand for the memory of the event. However, with our shared work we wanted to inquire into the *daily activity* of a public installation to discover questions of usability, which are not often addressed.

Second, in each of the historical examples, the site of the installation was chosen in such a way

that the narrative space in which the installation performed comprised the city space. The dependence of *At Hand* on a technical platform embedded in a city space did not leave its placement open to choice. This raises a more general question about the social and cultural meaning of public screens. As these screens are often placed at sites which lack cultural specificity or social memory, we may ask if there is an expectation that with media art these places would be invested with cultural values, promoted by festival events and their connections to cultural economies.

But it is also important to insist on the partiality of any connection between the disciplinary framings that we have presented here. There are ways in which *At Hand* resists being read within the frame of usability. Is a media art installation on a multi-touch screen meaningful only when it is interacted with? From an artist's point of view *At Hand* at the *CityWall* is a relational artefact, which is connected to its surroundings in a number of ways. All of these connections are part of its meaning. As such *At Hand* also embodies the risk of being misunderstood or missed entirely. If the risk were to be removed, the meaning of the installation would change. The core idea of *At Hand* is to address uncertainty in human encounters. But in order to do so in a meaningful way, the installation has to perform this uncertainty in its very being in the city space—even at the cost of being partially invisible.

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References

- Binder, T. and Redström, J., 2006. Exemplary design research. *In: Design research society Wonderground international conference*, 1–4.

- Brandt, E. and Binder, T., 2007. Experimental design research: genealogy, intervention, argument. In: *International Association of Societies of Design Research*, Hong Kong.
- Braun, S. and Stenner, P., 2001. Being affected: Spinoza and the psychology of emotion. *International Journal of Group Tensions*, 30 (1), 81–105.
- Chaos Computer Club, 2001. *Blinkenlights*, interactive installation, Documentation available from: <http://blinkenlights.net/> [Accessed 4 July 2011].
- Coutrix, C., et al., 2010. Engaging spect-actors with multimodal digital puppetry. In: *Proceeding of the 6th Nordic conference on human-computer interaction: extending boundaries (NordiCHI '10)*. New York: ACM, 138–147.
- Csikszentmihalyi, M., 1990. *Flow: the psychology of optimal experience*. New York: Harper & Row.
- Dalsgaard, P., Hansen, L.K., 2008. Performing perception—staging aesthetics of interaction. *ACM Trans. Comput.-Hum. Interact.* 15, 3 (Nov. 2008), 1–33.
- Galloway, K. and Rabinowitz, S., 1980. *Hole in Space*, public communication sculpture, Documentation available from: <http://www.ecafe.com/getty/HIS/> [Accessed 4 July 2011].
- Huhtamo, E., 2007. Twin-touch-text-redux: media archeological approach to art, interactivity, and tactility. In: O. Grau, ed. *Media art histories*. Cambridge, MA: MIT Press, 71–101.
- Jacucci, C., Jacucci, G., Wagner, L. Psik, T., 2005. A manifesto for the performative development of ubiquitous media. In: O.W. Bertelsen, N.O. Bouvin, P.G. Krogh and M. Kyng, eds, *Proceeding of the 4th decennial conference on critical computing: between sense and sensibility (CC '05)*. New York: ACM, 19–28.
- Jacucci, G., et al., 2009. Bodily explorations in space: social experience of a multimodal art installation. In: *Proceedings of the 12th IFIP TC 13 international conference on human-computer interaction: part II (INTERACT 09)*. (24–28 August, Uppsala, Sweden. Berlin, Heidelberg: Springer-Verlag, 62–75.
- Jacucci, G., et al., ed., 2010a. ParticipArt: exploring participation in interactive art installations. *Mixed and augmented reality – arts, media and humanities (ISMAR-AMH), 2010 IEEE international symposium*, 13–16 October 2010, Seoul. IEEE, 3–10.
- Jacucci, G., et al., ed., 2010b. Worlds of information: designing for engagement at a public multi-touch display. *Proceedings of the 28th international conference on human factors in computing systems (CHI '10)*, 10–15 April 2010, Atlanta, Georgia New York: ACM, 2267–2276.
- Jacucci, G. and Wagner, I., 2005. Performative uses of space in mixed media environments. In: E. Davenport and P. Turner, eds. *Spaces, spatiality and technologies*. London: Springer, 196.
- Kristeva, J., 1991. *Strangers to ourselves*. New York: Columbia University Press.
- Kuikkaniemi, K., et al., 2011. From space to stage: how interactive screens will change urban life. *IEEE Computer*, 44 (6), 40–47.
- Levinas, E., 1998. *entre nous: on thinking-of-the-other*. New York: Columbia University Press.
- Lozano-Hemmer, R. Documentation of work available from: <http://www.lozano-hemmer.com/> [Accessed 4 July 2011]
- Marks, L., 2000. *The skin of the film: intercultural cinema, embodiment, and the senses*. Durham, NC: Duke University Press.
- Massumi, B., 2002. *Parables for the virtual: movement, affect, sensation*. Durham, NC: Duke University Press.
- Media Façades Festival, 2010. Available from: <http://www.mediafacades.eu/> [Accessed 4 July, 2011]
- Merleau-Ponty, M., 2002. *Phenomenology of perception*. New York: Routledge.
- Peltonen, P., et al., 2008. ‘It’s mine, don’t touch’: interactions at a large multitouch display in a city center. In: *Proceedings of the 26th annual SIGCHI conference on human factors in computing systems (CHI '08)*, 5–10 April 2008, Florence. New York: ACM, 1285–1294.
- Sandnes, F.E., et al., 2010. User interface design for public kiosks: an evaluation of the Taiwan high speed rail ticket vending machine. *Journal of Information Science and Engineering*, 26 (1), 307–321.
- Spinoza, B., 1996. *Ethics*. London: Penguin Books.
- Struppek, M., 2006. Urban screens—the urbane potential of public screens interaction. *intelligent agent*, 6 (2), Special issue: papers presented at the ISEA2006 Symposium, August 2006 [online]. Available from: http://www.intelligentagent.com/archive/Vol6_No2_interactive_city_struppek.htm [Accessed 4 July 2011].
- Thrift, N., 2008. *Non-representational theory: space, politics, affect*. London: Routledge.

Tikka, H., 2010. *At Hand*, interactive installation. Documentation available from: <http://www.m-cult.org/projects/hand> [Accessed 4 July 2011].

Urban Screens, 2011. Available from: <http://www.urbanscreens.org/> [Accessed 4 July 2011].

Viña, Sandra, 2010. *Engaging people in the public space: ANIMATO a design intervention*. In: *Proceedings of the 11th biennial participatory design conference, PDC 10*, New York, NY: ACM, 235–238.

Weibel, P., 2007. It is forbidden not to touch: some remarks in the (forgotten parts of the) history of interactivity and virtuality. In: O. Grau, ed. *Media Art Histories*. Cambridge, MA: MIT Press, 21–41.

Wodiczko, K. Documentation of work available from: http://web.mit.edu/vap/people/faculty/faculty_wodiczko.html [Accessed: 4 July 2011].

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