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2016

<https://doi.org/10.25969/mediarep/1603>

Veröffentlichungsversion / published version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:

Ackermann, Judith; Reiche, Martin: Media Interaction in Public (Spaces). Researching Interactive Installations Support for (Inter-)Human Interaction with Machines and Environment. In: *Navigationen - Zeitschrift für Medien- und Kulturwissenschaften*, Jg. 16 (2016), Nr. 1, S. 71–84. DOI: <https://doi.org/10.25969/mediarep/1603>.

Erstmalig hier erschienen / Initial publication here:

<https://nbn-resolving.org/urn:nbn:de:hbz:467-10048>

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MEDIA INTERACTION IN PUBLIC (SPACES):

Researching Interactive Installations' Support for
(Inter-)Human Interaction with Machines and
Environment

BY JUDITH ACKERMANN AND MARTIN REICHE

ZUSAMMENFASSUNG

Der Artikel behandelt öffentliche Medieninteraktion, im Sinne eines komplexen Kommunikations-Szenarios, das Mensch-Mensch- und Mensch-Maschine-Interaktion verbindet und flexible Akteur-Zuschauer-Konstellationen an der Schnittstelle von digitalen und physischen Räumen entstehen lässt. Diese Faktoren finden sich insbesondere in interaktiven Installationen, die dadurch ein optimales Szenario für die Erforschung öffentlicher Medieninteraktion darstellen. Die AutorInnen analysieren zwei interaktive Installationen aus den Bereichen Spiel und kritische Medienkunst und liefern Ergebnisse zur Aneignung der Interaktionsgrammatik der Kunstwerke, ihren Potentialen für die Generierung neuer Interaktionsensembles und ihrem Einfluss auf das Umgebungsbewusstsein der Beteiligten.

ABSTRACT

This paper deals with media interaction in public, understood as a complex communication scenario combining interhuman and human-machine interaction that gives rise to flexible actor-spectator constellations at the junction of digital and physical spaces. These features coincide especially in interactive installations, which therefore provide a fruitful scenario to research media interaction in public. The authors analyze two interactive installations in the domains of gaming and critical new media art, offering insights into the appropriation of the artworks' grammar of interaction, their potential for the rise of new interaction ensembles, and the associated influence on people's environmental awareness.

I. INTRODUCTION

Digital media has become well established in public spaces, be it devices such as smartphones and laptops, digital advertising efforts, or interactive media art installations. The mediatization of communicative actions increasingly influences interaction practices in public spaces. The three types of mediatized communication, (a) mediated dialogical communication, (b) mediated monological communication, and (c) mediated interactive communication, as described by Krotz,¹ therefore

1 Krotz: »Konnektivität der Medien.«

need to be extended by one other form we call »media interaction in public.« We understand this form as a complex communication scenario that combines inter-human and human-machine interaction and gives rise to flexible actor-spectator constellations at the junction of digital and physical spaces.

Interactive installations in particular provide a fruitful scenario to research media interaction in public as they do not present a completed product to be regarded but a communication structure transforming visitors into co-creators,² relying on and requiring their participation in the process. »Interactive arts mediated by digital technologies are obviously rooted in these previous moments, which explored participation and bodily experience in group, human-to-human interaction or human to object/machine interaction.«³ These actions are heavily linked to performances due to the liveness of the process and the spatio-temporal co-presence of actors and spectators.⁴ With her concept of Hybrid Reality Theater, Ackermann⁵ establishes a connection between digital media usage and theater studies, acknowledging the fact that digital gaming is per se located in a hybrid space⁶ and performed in a live situation, enhancing the factor of co-presence toward the inclusion of avatars.

Schechner elaborates on the different layers of seeing connected to performances:

A person sees the event; he sees himself; he sees himself seeing the event; he sees himself seeing others who are seeing the event and who, maybe, see themselves seeing the event. Thus there is the performance, the performers, the spectators; and the spectator of spectators; and the self-seeing-self that can be performer or spectator or spectator of spectators.⁷

Interactive installations or games in public space offer a protective frame to the interactors to step out of their assumed role and diverge from their learned behavior in order to be able to fully experience interactivity. In that sense, interaction in public space offers new ways of experiencing by allowing people to act differently. Highlighting the visibility of that frame enables people to take on an attitude of playfulness⁸ by generating a feeling of belonging to a group and also of acting and

2 Ascott: »Behaviourist Art and the Cybernetic Vision«; Simanowski: *Digitale Medien in der Erlebnisgesellschaft*.

3 Pais: »The Sense Making Process in *The Legible City*,« 105.

4 Fischer-Lichte: *Die Entdeckung des Zuschauers*.

5 Ackermann: »Meaning Creation in Digital Gaming Performances.«

6 De Souza e Silva: »From Cyber to Hybrid.«

7 Schechner: *Between Theater & Anthropology*, 297.

8 Sicart: *Play Matters*.

performing in a protective frame.⁹ The frame is not at all persistent, but it exists only for a certain period of time, following self-referential rules. One way of supporting the frame's visibility is by connecting it to a special and extraordinary context, like a festival.

According to Kirchner, festivals provide situational promoters for the occurrence of so-called post-traditional communities.¹⁰ The term was introduced by Hitzler in 1998 to describe conscious community building that does not rely on tradition but is based on the knowledge about one's own individuality. It places the aspiration for a renewed communitization independent of biographical options and socio-moral milieus into the center of the process.¹¹ These bonding moments can outlast the festival duration many times over. Festivals focusing on performative media like games and interactive art even multiply this potential. Even though games are often described as an end in itself, without material consequences for the attendant's life outside of the festival, the meaning of a game is inseparable from its context and its players.¹² Games are connected to performativity and in that sense equipped with a transformative quality.¹³ They are able to alter players' perception of reality as well as their relations to others. Triggered by a different view of the world and its modified meaning for the players, they even result in a transformation of the world itself.¹⁴

Our study investigates the role of interactive installations in this field by showing observations from two artworks located in the sphere of gaming and the domain of critical new media art.

2. METHOD

Our research focuses on two interactive installations curated at the playin'siegen international urban games festival in April 2015. The art pieces originate from two different spheres: critical new media art and digital gaming. Their similarities, however, suggest a parallel analysis. This section begins with a short introduction to the two installations and continues by presenting our research design and our methodology.

9 Ackermann/Mariani: »Re-Thinking the Environment through Games,« 76.

10 Kirchner: *Eventgemeinschaften*, 24.

11 Hitzler/Pfadenhauer: »Eine posttraditionale Gemeinschaft,« 88.

12 Koubek: »Zur Medialität des Computerspiels.«

13 Fischer-Lichte: *Performativität*; Ackermann: »Meaning Creation in Digital Gaming Performances«; Reichert: »Fan-Made Transmedia Storytelling.«

14 Weiß: »Sich verausgabende Spieler und andere vereinnahmende Falschspieler.«

2.1 CCTV2.0

CCTV2.0 (a neologism derived from the abbreviation of *closed circuit television* and 2.0 as an advanced version of such) is an interactive video installation developed by the German media artist Martin Reiche in 2015, debuting at playin'siegen in April 2015 (fig. 1). The installation falls into the domain of critical new media art and is set up in (semi-)public spaces, where it is automatically detecting passersby via face recognition software, associates the detected faces randomly with profiles from a huge database of social media profiles, and displays the results of this association prominently on a TV screen to catch public attention. The results of this detection process are also fed back into the corresponding social networks (Facebook; Twitter) in an attempt to propagate the potentially false information about »detected« people in order to raise awareness of the inherent danger of »black box« algorithms used in privacy-relevant computational contexts.¹⁵

The installation garnered substantial attention internationally and has been shown at various festivals in Europe since its initial showcase in Siegen.



Fig.1: CCTV2.0 installation (a) detail and (b) exhibition setup at a public street in Siegen (Courtesy of the artist).

2.2 FENTRIS

The *Fentris* installation was developed by the Hackspace Siegen initiative (HaSi e.V.) for the urban games festival playin'siegen. The term »Fentris« is a portmanteau of the German word »Fenster« (window) and the name of the game *Tetris*, which was popularized by Nintendo. It was coined because the installation presents a large-scale *Tetris*-like game to be played in a shop window, using rear projection material for the visualization and arduino-based interaction controllers built out of large neon-colored mops. Even though they do not look like it, the interaction possibilities resemble those from the Nintendo Game Boy, imitating the

¹⁵ Reiche: »CCTV2.0.«

control cross and the a and b buttons (fig. 2). The game installation was placed in a shop window; the controllers were deposited in front of it on a table in the public space. Through this arrangement, the installation attracted passersby either through the visuals, the untypical mop setting, or people already interacting with the game installation.

As *Tetris* is a classic computer game, taking a glimpse at the tetraminos already refreshes memories of previous gameplay experiences for many people. Concerning the visibility of the protective frame provided by the installation, *Fentris* reaches a high level by relying on its decidedly playful appearance, which makes it easy for passersby to identify it as an extraordinary setting in the urban landscape.



Fig. 2. *Fentris* Installation - shop window visualisation and input devices built from mops (2015, HaSi @ playin'siegen international urban games festival, photos by Martina Kaiser/playin'siegen).

2.3 METHODOLOGY

During the playin'siegen festival, the interaction with both installations was recorded via audio-visual observation. In the case of *Fentris*, it was realized by means of an overt observation with a visible camera and a written piece of information; in the case of *CCTV2.0*, the camera was integrated into the installation itself.

The data consists of a total of 3 hours and 15 Minutes of *Fentris*-observation recorded in the early evening of the first and the second day of the festival, covering more than one hour of the first day and more than two hours of the second day. The material is evenly distributed over 14 video files, with a duration of up to 15 minutes each. The data concerning *CCTV2.0* covers 1 hour and 28 Minutes on six video files recorded in the early afternoon of the second day of the festival.

The data was analyzed with a combination of qualitative content analysis, conversation analysis, and video interaction analysis. In a first step, interaction se-

quences were identified in the material. For *Fentris*, 45 sequences were detected. For *CCTV2.0*, 11 interaction sequences were found. The explorative study focused on the following three aspects and their intersections:

- (1) Appropriation of the grammar of interaction
- (2) Rise of specific interaction ensembles
- (3) Influences on environmental awareness

The aim of the study was to understand (a) in how far the artworks generate not only multiple human-machine and interhuman interactions but also interactions with the environment in which they are placed; and (b) what influence the different artworks' contents and modes of interactions have on these factors.

3. APPROPRIATION OF THE GRAMMAR OF INTERACTION

Dealing with the appropriation of media, one can locate the moment and production of an (at least basic) understanding of the medium at the very beginning of the process.¹⁶ In the field of interactive art and public gaming, with interventions requiring people's participation and very often using input devices and material in an unfamiliar way, understanding the *grammar of interaction*¹⁷ becomes a key factor. The term was introduced by Fujihata in 2001 to describe the interaction possibilities the designer/artist implemented into the installation to organize user interaction. According to Simanowski, »the specific interaction that interactive art allows and requires itself represents a message and a call for understanding and decoding.«¹⁸ Yet allowing the user to actively interfere with the installation opens up room for »cases where the interactors use the grammar of interaction in a way the author did not have in mind, thus appropriating the generated space-time of interhuman experiences according to their own desires.«¹⁹

The two artworks chosen for this study differ substantially in their grammar of interaction: *Fentris* adopts the interfering modes of *Tetris*, which is why the designers built the unique input devices as an analogon to the arrangement of the Game Boy. The game itself in most cases does not need to be understood by the people via intense cognitive analysis. It is rather the input devices that need to be appropriated. *CCTV2.0*'s mode of interaction visually interferes with public space by providing unsolicited information about a passerby on a screen for public display, hoping to catch the attention of the passersby as well as anybody within visibility range of the screen. The installation does not make any effort to detect

16 De la Rosa: *Aneignung und interkulturelle Repräsentation*, 16.

17 Fujihata: *On Interactivity*.

18 Simanowski, 127.

19 Ibid.

people correctly (which is not publicly revealed), thus leaving the interactors alone with their own assumptions.

In addition to providing a comprehensible and clear grammar of interaction, *Fentris* comes with a sheet of paper offering some written instructions about the handling of the game. This paper can – especially on the first day, shortly after the set-up – be identified as a first and very low-threshold entry toward interacting with the installation. Especially in times when no person is actively interacting with the installation, people recognizing the visuals tend to turn to the written instruction to read it but (in a first step) refuse to interact with the installation (F01_IS2, F01_IS3, F01_IS5, F01_IS6, F02_IS6, F04_IS2).²⁰ The recordings documented no moments in which a single person approached the installation, read the instructions, and immediately started to play, when no other person was already interacting with the installation. Only a few people addressed the installation in order to start interacting with it directly, and those were young adults approaching the installation in teams of two (F03_IS01, F07_IS02). These sequences also showed a very intuitive access to the installation, working with the instructions in a mostly self-determined way, only looking at them when problems in handling the installations occurred.

It was much more the fact of finding other people playing the installation and watching them for a while that enabled new players to easily gain an understanding of the grammar of interaction and seemed to trigger an urge to start interacting. Having a person actually play *Fentris* changes the way of approaching the installation. In that case, approximating the players and observing their actions is the most prominent start to appropriate the grammar of interaction.

In a similar way, people very much support each other in understanding how to handle the installation – especially after having played for a certain time. This pattern occurred in the majority of analyzed interaction sequences. It included not only explaining the rules and the grammar of interaction in general (F01_IS3, F02_IS1, F02_IS5, F03_IS2, F03_IS, F05_IS3, F05_IS4, F06_IS2, F09_IS1) but also supporting others in their gameplay by giving hints (F02_IS3, F02_IS5, F03_IS2, F06_IS2, F07_IS2, F11_IS1, F11_IS2). These findings underscore the enormous potential of media interaction in public.

In the case of *CCTV2.0*, a very low-threshold way of first access can be identified in people turning toward the installation while still walking through the pedestrian area at their regular pace with no change in walking direction (see C2_IS1). A somewhat more intense access results from a change in pace and a slight change of direction toward the installation, but without stopping (see C2_IS2). Pausing in front of the installation represents the next higher degree of interaction (C4_IS2).

20 The abbreviations refer to the collected data, identifying the installation (F = *Fentris*, C = *CCTV2.0*) and the video number as well as the number of the specific interaction sequence (IS) containing the finding.

Again, we can find mostly groups of young adults who approach the installation quite directly and start to interact with it almost immediately (CI_IS2, C3_IS1, C4_IS1). Yet, as in the case of *Fentris*, already finding an interactor present seems to encourage other people to approach the installation (CI_IS3, CI_IS4, C5_IS1, C6_IS1).

Another important finding during the exhibition of *CCTV2.0* was the urge for some people to experiment with the means of face detection, ranging from standing still in various locations of the street to find the physical boundaries of the cameras and therefore of the detection to jumping and moving fast in order to evade the detection, resulting in play-like scenes unfolding in front of the installation (C6_IS1). While trying to experiment with the installation in order to understand all possible ways of interaction, the spectators were perverting the statement of the work (raising awareness for the general problem of extensive surveillance) by offering themselves as victims of the surveillance over and over again (see *C5_IS1: The interactor tries out different positions in front of the camera and checks TV visualisation for right face recognition; a passerby approaches the installation. spectator: »Does this work?«; interactor: »No, it repeatedly identifies me as the wrong person. I give him the best chance«; spectator: [laughs]*). These individuals were unconsciously providing the installation with the necessary amount of interaction in order to create data that can be spread on the social networks again to raise awareness not only on-site at the festival but also on the Internet.

This way of appropriation stood in contrast to people who tried to stand as still as possible (C4_IS1, C5_IS1) in the hope of increasing the accuracy of the detection system – hoping to find their own social media profile displayed on the screen. However, people were specifically happy about being detected as somebody completely different (opposite sex, indiscernible social media profile picture, etc.), deriving their joy out of the unexpected detection and the narrative that comes with it (see *CI_IS2: A group of young adults approaches the installation pretty fast. A young woman runs toward it and jumps in front of the TV visualization, interactor one [ironically]: »Look, that's me. Definitely« [laughs]*).

Even though *CCTV2.0* was rather inconspicuous as it was placed behind a shop window, its physical interaction space encompassed the whole width of the street, meaning that interaction was possible directly in front of the window frame as well as at the opposite side of the street. This allowed people not only to interact with the installation as such, but also to explore the boundaries of the interaction space itself in an effort to evade or to trick the installation. The attempt to subvert their functionality is a common reaction to interactive works²¹ and can be understood as a way to explore the interaction possibilities. Moreover, it shows that an awareness of the space that the installation occupies has already been established.

21 Stober et al.: »Hacking as a Playful Strategy for Designing Artistic Games«; Rodriguez: »The Playful and the Serious.«

4. RISE OF SPECIFIC INTERACTION ENSEMBLES

Both installations are stationary and invite people to participate in them, requiring a certain amount of time to become familiar with the grammar of interaction and the specifics of the artworks. They break up people's routines of traversing a city at a certain pace, following a certain goal, causing them to remain at a certain space for a certain period of time, going beyond the time span expected for window shopping.

People know the untold interaction and behavioral rules of city life by heart and immediately recognize when people behave in a different way. As already suggested, highlighting the visibility of the protective frame in which people act makes it easier not only for the interactors to perform accordingly but also for the passersby to interpret the actions they witness.

In this context, the two installations we analyzed differ in crucial aspects. While *Fentris* is accompanied by an outdoor control table that immediately distinguishes the installation from the standard shop window decoration, the different parts of *CCTV2.0* are located inside the shop window. Therefore, nothing raises attention as long as people only walk through the pedestrian area. In addition, the interaction unfolds only via webcam registration and TV output. In this way, even if a person is actually interacting with the installation, this does not obviously appear to be suspicious for third parties. That is why – other than in the case of *Fentris* – *CCTV2.0* did not gather very many people together at once who were not familiar with each other before. Exceptions were cases where people experimented with the installation in a somewhat expressive way (see previous paragraph).

Furthermore, the installations differ in terms of the duration of interaction: *Fentris* requires more committed interaction, which can lead to longer activities with the installation, supplying greater potential for the rise of new interaction ensembles emerging from jointly turning towards the artwork. One young boy interacted with the installation for more than one hour in different constellations and with varying intensity (see F09-F13). By contrast, the longest interaction sequence with *CCTV 2.0* was eight minutes (C6_IS1).

Another reason for an increased interhuman interaction at the *Fentris* installation can be found in the two artworks' different grammars of interaction: Unlike with *CCTV2.0*, it is actually possible for the interactors to understand *Fentris*' grammar of interaction just by using the installation. Through the process of playing, people almost automatically gain knowledge highly relevant for future players, functioning as a perfect common ground to start interacting with former spectators.

Additionally, the fact that *Fentris* contains a point of disruption, the game over element, constitutes a predetermined moment to hand over the control and start interacting with each other (see F03_IS2, *player reacting to game over message*: »Ahhhh! (turning to a spectator) Do you also want to?«). At the same time, the short break that is generated by the game over situation presents an opportunity

to take over the controls without invitation (see F02_IS2), resembling the strategy of turn-taking in conversations and therefore being part of interhuman interaction as well. The predetermined moments to change turns are so obvious that spectators are not prepared to be invited to play at other times (see F09_1, *player, not even almost game over, turns to spectator: »Do you also want to play?«; spectator: »After«; player: »You can also now – if it doesn't bother you« (referring to the actual game state, spectator starts to play).*

As *CCTV 2.0* does not include predetermined moments where it is obvious that a change of interactors makes sense, there were no events of actively passing on the turn between interactors and passersby. More prominent was the fact that spectators started to interact with the installation in a parallel fashion, something that was supported by the setup with a camera covering a huge part of the pedestrian area to operate the face recognition, allowing people to interact with the installation without being immediately in front of it (CI_IS2, CI_IS3, C5_IS1). Through this setting, people were not as heavily encouraged to interact with other people as in the case of *Fentris*. They rather waited until the former interactors had left to increase their own activity with the installation (CI_IS3).

5. ENVIRONMENTAL AWARENESS

As Ackermann/Mariani suggest, public art and gaming interventions that actively rely on the surrounding space are equipped with certain heterotopian qualities, opening up »a time slot of increased opportunities for environmental learning.«²² The interactive theatricality functions as a mediator between the digital and the physical world²³; the body becomes the interface between the two spheres.²⁴ A new intensity of body perception is gained.²⁵

Even though *Fentris* does not actively aim at raising a specific awareness about people's environment but rather proposes a general invitation to playfully reclaim certain parts of the surroundings in an irregular manner, it creates new collaborative experiences for the people with their environment and can function as a tool for bonding. People interact with each other, using the installation as a common ground, spending a certain period of time at a certain spot in the city they would not normally recognize as specifically and as intensively. The installation is located at the entrance of a vacant retail store at the beginning of a pedestrian area's side street that is usually not traversed by passersby. During the festival, the building was used as an event location, not only presenting the described installation but also for several performing activities inside. This enabled

22 Ackermann/Mariani, 73.

23 Leeker: »Theater, Performance und technische Interaktion.«

24 Obermaier: »Interactivity in Stage Performances.«

25 Angerer: »I am suffering from a spatial hangover.«

the passersby to spend some time at the location and recognize it anew, raising awareness for its spatial specificities.

CCTV2.0 aims to raise environmental awareness on a more abstract level. An explicit goal of the installation is to point people's attention to a societal problem and to establish a critical attitude toward technology by directly confronting the spectator with an unexpected situation: *CCTV2.0*'s face recognition does not make any effort to *correctly* associate the person detected in the public space with a person in its own database and therefore constantly creates false information. This is directly obvious to the spectator who is standing in front of the installation while the association is happening. Together with a general public understanding of the workings of reconnaissance systems through current mass media (movies as well as news), this creation of obviously false information is used as a trigger to drive the passersby's attention away from the installation itself and toward a bigger problem: the ethics of surveillance (and the problems resulting from it) and the violation of trust that comes with an obviously wrong association to a different person's online profile.²⁶ The point is to question the overall trust that we allot to algorithms and digital technology in general.

This new awareness is an irreversible intervention in the mental space of the spectator as much as it is an intervention in the physical space occupied by the installation: For the spectator, this very physical space will now be associated with the space in which the aforementioned awareness was raised. The location of the installation has gained a new quality for this person that will outlast the duration of the festival itself.

Another problem is inherent to the topic of surveillance and therefore should be discussed in this context as well: Overt surveillance (or fear thereof) is changing the way how people act in the surveilled space.²⁷ For *CCTV2.0*, though, obviously being an interactive installation artwork, this factor is replaced by people interacting not because of the assumption of surveillance but because of the assumption of a playful experience designed for them as well as the urge to understand the deeper meaning of the work. For the latter, this urge to understand is not directly caused by the installation's interactivity but by the label of »criticality« given to the work in the context of the festival itself.

6. DISCUSSION

Our observations suggest that highlighting the visibility of the protective frame provided by an interactive installation supports people in entering the mode of playfulness. This attitude »of engaging with particular contexts and objects that is similar to play but respects the purposes and goals of that object or context«²⁸

26 Marx: »An Ethics for the New Surveillance.«

27 Lohr: »How Surveillance Changes Behavior.«

28 Sicart, 21.

serves as an intuitive way of appropriating an artwork's grammar of interaction and simultaneously offers possibilities for interhuman interaction during a collective interaction with the installation. We have especially seen that being able to understand the grammar of interaction in combination with the integration of predetermined moments to pass over the control of an installation (e.g. a game over screen) encourages the emerging presence of interaction ensembles, while even when lacking this feature, an interactive installation can still bring people together on the level of questioning the functionality of the installation collectively without necessarily having shared a collective interaction with the work itself.

Furthermore, our findings suggest that playful strategies of interacting with art installations in public can be used to reclaim spaces in a city that are currently mainly serving one specific function: consumerism. *CCTV2.0* was located behind a shop window, thus being hardly discernable from other shops in this street. Yet once recognized, it made unmistakably clear that it did not belong there – breaking with the expectations of passersby. Drawing a connection to Augé's thoughts on non-places,²⁹ we can see how media interaction in public (spaces) can be utilized to reclaim formerly or usually functional space to become a space that inherits a narrative³⁰ or a playful experience. They can do so by creating new thoughts, allowing for encounters between otherwise unknown inhabitants (interaction ensembles) or becoming associated with the joy the people felt while interacting with the art that was temporarily installed at these locations.

As our explorative study has shown, media interaction in public (spaces) can function as a powerful tool to alter people's perception of their environment and their relations to others in manifold ways. Nevertheless, only little research in the domain has been conducted to date, leaving much potential for further investigation.

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