When Audiences Start to Talk to Each Other:

Interaction Models for Co-Experience in Installation Artworks

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Abstract

This position paper presents models of interactions among audience members for installation and workshop-type media artworks that accommodate the participation of more than one audience member. To suggest models that are applicable for new media works, we select some examples from the contemporary-art field. Two artwork plans using this model are introduced as direct implementations of the models.

Introduction

Because of the emergence of media art and interactive technology, the relationship between an artwork and its audience has been examined and questioned. However, when the ‘place’ of experiencing the artwork is moved beyond the inside of a white cube or around a PC interface for individuals, we may accommodate more than one audience member into the relationship. In this case, we must also consider group interactions among audience members in front of and inside artworks. We examine models that have been suggested in the CHI field as well as those found in contemporary artworks. In this position paper, ‘model’ describes the categorization of interactions and their processes.

Background

We shall first present a discussion of models of interaction and processes in which an artwork accommodates more than one audience member in its exhibition space. Although our opinion here does not cover all possible models for this, we propose a way of thinking using examples from contemporary art. As background, we briefly review the current state of media artwork and discussions in the CHI field related to multiple audience issues and user experiences.

Numerous examples exist, such as Multi-User Dungeons (MUDs) and online virtual communities, which enable users to interact mutually through online virtual space. Shared Virtual Reality is another platform for interactive art [5]. Interaction among users, participants, and audience members is a primary concern of these systems because connection and interaction among individual users creates the body of experience. Moreover, because of the emergence of mobile devices, real and psychological spaces in which the shared experience takes place are broadening. Some artworks [3] have multiple accesses to the artwork, either from networked space or real space, so that the center of the audience's experience extends across different types of spaces and changes its center along to the process of the artwork experience. Here, interaction and co-experience take place on different kind and remote places.

Emergence of mobile devices and expansion of space for interaction through it is not only the media artist's concern. In the CHI field, co-experience is examined [2]. These examples prove that mobile technology is a driving technology to expand the audience's experience distributed across spaces. Consequently, it allows participation of multiple audience members and facilitates their mutual interaction.

On the other hand, interaction between audience members has not been a priority of the system design of installation-type works, which are shown and experienced at a single 'real' space. One reason why it has not been so is that, unlike MUDs and mobile technologies, in real space, users mutually interact without need of the system. For instance, they talk over projected images while the system does not sense or know it. The interaction that these media artworks target is that to which technology commits directly. Interaction among audience members on the air of real space has been treated somewhat as a side effect by which system interaction occurs.

At least one study has addressed relationships and interactions among audience members and participants. Spectator Experience [11] is perceived as expanding the frame of thinking from the system and a user to a wider scale, which involves the audience (spectator) around the user: not only the user who is engaging the artwork and its system. However, that model is yet based on the conceptualization of "a user using the system."

Although most interactive media art installations specifically address a single user's experience and shared experience in virtual space, in the contemporary art field, although these are not technology-oriented and detailed intentions have not been documented explicitly, interaction between audience members serves an important role in some artworks.

Position

Our strategy and position here:

1. Do fieldwork in the contemporary art field to discover models which are unexamined in both CHI and the media art field

2. Apply such a model to media art works

In this section, we shall discuss found models from some contemporary artworks that accommodate more than one audience member. Two models are discussed from among those four examples of artworks from the contemporary art field. The possibility of finding other models is left to further research.

Pass Model

The Pass Model is a model which includes interaction of passing of information through audiences. We present two examples from contemporary art to describe what we propose here. The information changes its form when it is transferred through each audience member. Therefore, in some sense, this is also co-creation. However, the action of passing the information is more noticeable.

Figure 1: A photo shows Basic concept of Transfer Drawing series.

DENNIS OPPENHEIM, "TRANSFER DRAWING" SERIES (1971–1972)

This artwork [9] is shown as video documentation of a communication game-like work. He did several sessions of 'drawing on one's back' session with his family and let members of his family do it. He tried some variations this work could take, includes 'Feed-Back Situation' [10] which father and son draws each other's backs same time.

NORIYUKI FUJIMURA, "WE WILL FIND A FLOW OF INFORMATION THROUGH OUR BODIES" (2003)

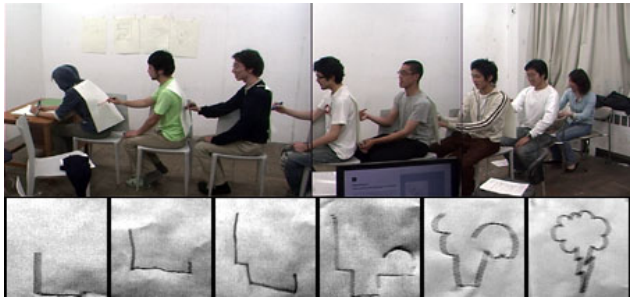

Figure 2: A photo from the workshop. Drawing on the bottom represents the outcome of a session.

This artwork/workshop [6] was created by one author of this paper. Inspired by Oppenheim's work as well as the Chinese Whisper game, the workshop was intended as sessions to experience the flow of information flowing through us. Unlike 'Transfer Drawing', the number of participants is usually 6–10; they can review the result as series of drawings on site. The artist allows participants to add small rules to influence the results to make the flow "modifiable." Group interactions occur throughout the session.

Figure 3: Situation of two of audience members are 'participating' the handphone table.

Co-Experience Model

A Co-Experience Model is a model that is closer to that discussed in 'supporting creativity co-experience in MMS' [2] paper. However, because this model takes place in real space and occurs without technology, the model's foundation is based mostly on unrecorded, non-verbal actions of audience members. An important point of this model is that the experience never starts without company.

LAURIE ANDERSON, "THE HANDPHONE TABLE" (1978)

Although the title of the work [1] implies the usage and instruction of how to experience the main part of the artwork, why the table is selected (why not a desk?) and why it accepts two of audience members to experience the artwork is not directly instructed to the audience. However, as most photographs of this artwork show, when two members of the audience sit at the table and put their hands onto their ears, the scene that the artist intends seems to be completed. I myself realized what to do when I sat on the chair and saw what the other audience member was doing. In some ways, the audience member on the other side of the table seemed to be a reflection of me, as though I were viewing a looking glass. The distinct point of the artwork is that the whole direction of the artwork is designed to offer this silent interaction without any instruction.

"Table Recorder"(2007) by Frederic Gmeiner [4] also has the function of using a table as an audio interface, but the situation of being experienced by more than one audience member is apparently of no particular concern. Technically, it is possible and allowed, but the work is not presented to invite such a process.

NIHON HOUSOU KYOKAI, "ALGORITHMIC GYMNASTICS, ALGORITHMIC MARCH" (2003)

This work [8] does not really appeal in the contemporary art field but is presented as part of an educational TV program for children of around 6 years old. Nevertheless, it has gained the reputation among some adults as being "fun." Nihon Hosou Kyokai (NHK, the public TV channel of Japan) says that the object of the TV program is to foster "Thinking about thinking" by watching TV. The work is an implementation of this goal. Both the gymnastic dance and march are choreographed in a slightly complex way that seems pointless when viewed as performed by one person. In stark contrast, when they are performed by more than one person, they reveal detailed motions that are designed to be coupled with other's motions. Consequently, the choreography compels players to understand what creation by two people means.

This work seems to be inspired by Norman McLaren`s animation film "Canon"(1964) [7] which depicts the harmony of a complex but elaborately designed sequence of motion of objects and persons in the form of an experimental animation film. However, the important point of this work is that it lets viewers choreograph them. More than one person (assuming a parent and a child) must collaborate to trace the interesting points of the work. In this sense, the work has a unique co-experience model within it.

Application

Here we propose two artworks that are now under development in our research group as direct implementations of the models. For the ‘Pass Model’, we propose an interaction system for a museum situation. For the ‘Co-experience’ model, we propose an installation artwork using a stereo-vision system. Both are enhanced by current technology to amplify interactions inspired from models that we described in the last section.

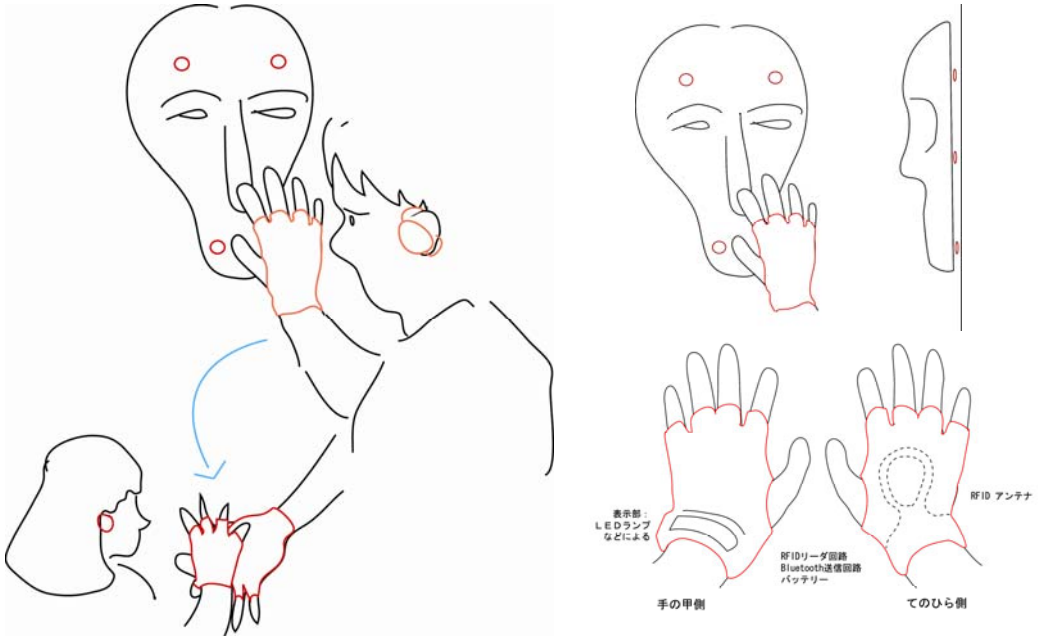

Figure 4: Action of passing information.(left). Physical interfaces of the artwork.(right-top/bottom)

Touch and Pass

This artwork is meant to be shown at a museum of anthropology. We specifically examine the character of the museum, by which the audience can touch most things that are displayed. The significant experience that this museum offers is the experience of touching real things from the past history of human beings. Our starting point of the idea is how to amplify the experience using technology without interfering with the sense of touch, but emphasize the senses.

Our proposed system is simple: RFID tags, Bluetooth headsets, specially designed gloves, and a PC server form the artwork. Each audience member wears a glove and a headset. The glove has an RFID reader, an RFID tag, and a Bluetooth unit. When an audience member touches a display, the hand finds the hidden RFID tag behind the display. The PC server sends correspondent audio information to the headset of the audience member who finds the tag. The Pass model is implemented for further interaction among audience members. We target a group of audience members as users. A group of friends, a family, or a group of students led by a teacher can be ideal. An RFID tag is put not only behind displays but also within each glove. When one audience member finds the hidden ‘information’, they can pass or exchange the information by touching their hands (gloves) to others. An RFID reader in each glove also reads the tag on each glove; thereby, the system knows who touches whom. We are conscious of relationships within the group. Children and adults might not need exactly identical audio information to feel the display and its story in exactly the same way. Although they pass the information by touching each other, what they will hear can differ.

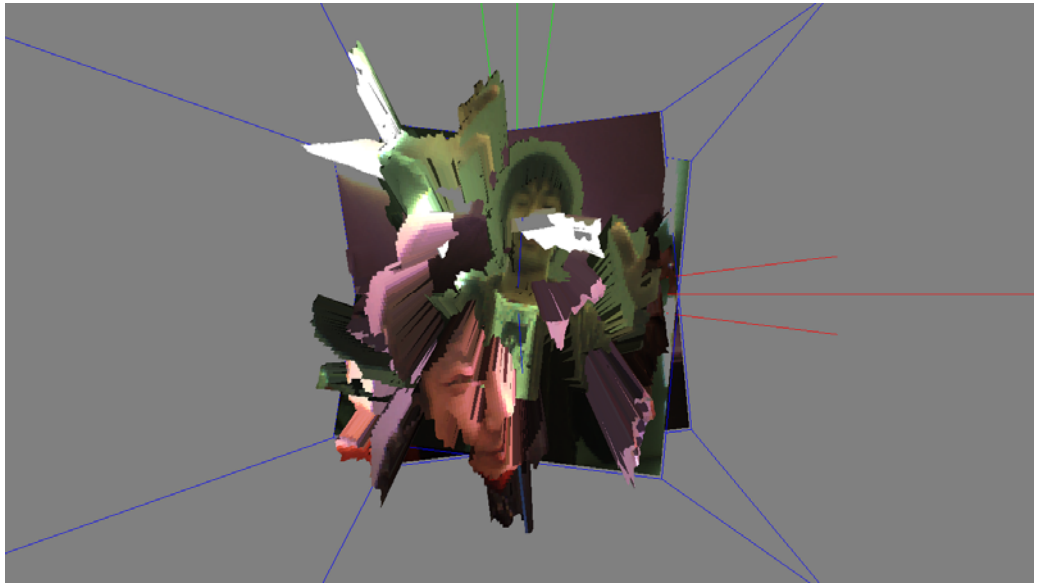

Figure 5: 3D models generated from data create an illusion of mutual touching in virtual space.

Mirage Contact

This artwork creates a mirage or illusion of mutual touching in virtual space through a 3D image of the body constructed from information processed using a stereo vision system. A pair of stereo cameras is located in front of two audience members; each camera shoots each audience member's body in real time. A large display in front of them shows a virtual space in which a 3D image of each audience member interacts. Figure 5 shows current development. In this virtual space, two bodies can interpenetrate or interfere with each other in ways that are impossible in the real world. Those interactions can be controlled using the algorithm we install in the system. In this work, we implement the Co-Experience model, particularly the aspect of "experience never starts without company." An audience member will need other audience members to experience the artwork.

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References

[1] Anderson,L., The Handphone Table,1978

[2] Battarbee,K., Kurvinien,E. Supporting creativity – co-experience in MMS. *In Proc. COST26*9, Helsinki, Finland, 2003

[3] Blast Theory., Day of The Figurines, *Sonar Festival*, Barcelona, Spain,2006

[4] Frederic Gmeiner, Table Recorder,2007

http://www.fregment.com/table/index.html

[5] Fujihata,M., Nuzzle Afar: Distant Affairs and Greetings, *Dutch Electronic Arts Festival (DEAF)*, 1998,

[6] Fujimura,N., We will find a flow of information through our bodies, 2003

[7] McLaren,N., Canon, 1964

[8] Nihon Housou Kyoukai(NHK), Algorithmic Gymnastics and Algorithmic March, 2003

[9] Oppenheim,D., Transfer Drawing sereies, 1971-72

[10] Oppenheim,D., A Feed-Back Situation,1971

[11] Reeves,S., Benford,S., O'Malley,C., and Fraser,M. Designing the spectator experience, In: *ACM Conference on Computer-Human Interaction (CHI'05)*, pages 741--750. ACM Press, April 2005