

# *Understanding Interaction in Ubiquitous Guerrilla Performances in Playful Arenas*

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**The inherent freedom of *playful arenas* combined with intimate ubiquitous technologies has led to a new breed of guerrilla performance. We draw on theory from computing, performance and club culture to illustrate the Performance Triad model, a method for the analysis, deconstruction and understanding of tripartite interaction in playful arenas. We then apply the Performance Triad model to *Schizophrenic Cyborg* a part reversal of wearable computing technology where the user is outfitted with an electronic communication display and yet this display is visible to others not the cyborgs themselves. This ubiquitous performance investigates the shifting boundaries between performer, participant and observer and of technology-enhanced guerrilla performance.**

**Keywords:** wearable computing, computing intimacies, ubiquitous computing, performance art, playful arenas, tripartite interaction, performance triad model.

## **1 Introduction**

The empowerment and facility of new ubiquitous sensor technologies combined with the inherent freedom of *playful arenas*, such as nightclubs, has led to a new breed of performance. These new performances meld atoms and bits, performer and audience, fantasy and fact to create an intimate connection between our physical and virtual world and to affectively augment our notion of expectation.

We perceive the underground club space as a playful arena where all who contribute to its status as a communal event embrace participation, performance and play. The clubbing environment invites individuals and groups to gather together, to suspend time and to engage in a social activity, which allows them to play with and destabilize notions of identity and reality. New possibilities are envisaged through collaborative creativity.

Observable participation encouraged by these playful arenas may be planned and intentionally invoked by performance. Alternatively, participation may be unplanned and proactive on the part of the audience. Clubbers (a person present in the club space) themselves add to a sense of the theatrical experience by adopting 'characters' who interact with the crowd over the course of a night. This intentional shape shifting and willingness to 'other' provides us as technologists and performers with a fertile ground for experimentation and innovation.

Low-cost sensing and quick set up allows for more flexible, spontaneous and mobile *guerrilla performances* however, few use high-technology. Guerrilla performance [Hill 2001] is a contemporary hybrid art form which comments on the political and social behaviour of the everyday through performance and is often seen as artistic activism. Performances tend to occur outside the traditional theatre and are not pre-rehearsed like a theatre play but more like experiments, often without a known or explicit outcome.

Steve Mann's *culture jamming* uses of wearable technologies for his politically motivated surveillance performances [see Mann et al. 2003] is one example. However, we are unaware of any work that explores the use of wearable computing for guerrilla performance in playful arenas. In fact, little research exists which explores wearable computing in the arts.

A preliminary study of wearable computing misconceptions [Sheridan et al. 2000] suggests that wearable users and non-users make attempts to communicate with each other without a framework for understanding or interpreting their interactions. For example, when one wearable computer user's frames were white, outside observers assumed that he was visually impaired. We saw this knowledge awareness gap and lack of application breadth as an opportunity to further explore how wearable computing could be used in guerrilla performance to exploit misconceptions about wearable computers:

"As a schizophrenic cyborg, interacting with other people became a strange experience, as often I was instrument in communications, without knowing the nature of my input." (post performance interview with a cyborg)

Our interest lies in how innovative technologies such as wearable computing stimulates the desire of the clubber and outside observer to create and be performative within playful arenas; how the technology promotes dialogue between itself and the user; how the use of such technology may signal new and innovative performance practices.

An opportunity to explore these connections arose with the announcement of *Art-Cels*, an art and technology performance party and the last event in a

three-day celebration with performance artist Stelarc. The event challenged artists and technologists to come together to discuss, display and perform the future of computing and performance art in human-machine communication. Guerrilla performance was encouraged; artists were asked to turn up on the night of the event and perform in any manner they wished. As a result, we formed a collective called *thePooch*. and performed *Schizophrenic Cyborg* a guerrilla performance that explores the limits of wearable computing in terms of collected identity, technical dependency and technical representation.

In this paper, we discuss use of technology in performance and then present our Performance Triad (PT) model. We then describe our guerrilla performance and conclude with a discussion of our observations and problems associated with evaluating performance art using HCI methodology.

## 2 Innovative Technologies in Playful Arenas

Use of modern technologies in planned performance is not new. Laurie Anderson, Kraftwerk, and Stelarc, have all paved the way for recent innovations in the cross fertilization between performance and technology using body-worn sensors (see <http://www.stelarc.va.com.au/>) mobile and wearable computing [Mann & Niedzviecki 2002; Wren et al. 1997], directional audio [Pompei 1999] and interactive projections [Lock et al. 2003]. As we become more familiar with these technologies, and as these technologies become both more affording and more affordable, their use is becoming more diverse and widespread.

The growth in this field has gone hand in hand with the increasing number of performances that seek to investigate and redefine notions of performance and performativity as essential human activity that can occur beyond the tightly bound world of the theatre building. Collaborations between scientists and artists, such as *Uncle Roy Is All Around You* [Flintham et al. 2003], *Art-Cels* (see <http://www.art-cels.com/>), and *The Brain Stripped Bare* (see <http://www.rebeccaallen.com/>), take full advantage of technology in performance to extend the physical with the digital.

With the addition of innovative technologies in performance, we see a dramatic shift from traditional, fixed theatre towards a more dynamic form of guerrilla performance, which encompasses audience participation and the integration of the real world and the everyday. Probably one of the best examples of this is pioneering cyborg Steve Mann's *sousveillance* [see Mann et al. 2003] a form of situationist street theatre.

In this paper, we seek to investigate the use of technology in playful arena performances that have emerged from the vibrant, and often underground, dance music scene of the late 1980s. We perceive clubs as playful arenas, what Fiona Buckland [2002] calls 'playgrounds of culture'; liminal spaces where identities are fluid, boundaries blurred and new meanings made possible. Is it possible to suggest that DJs, dancers, performers and participants are engaged in a creative collaboration, feeding off each other to create a new whole? How can our performative technological interventions promote that state? Jacques Attali [1985] envisaged a world in which technology would become a creative instrument, a tool for performance. We seek to explore that, not by observing what is already there but

by pushing the limits of what we know is possible and what we believe might be possible.

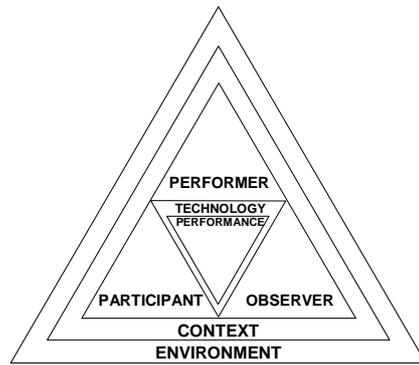
In order to assist us with this task of investigation and understanding, we use a new model of technology-based performance. This model allows us to dissect the structure of a performance, in order to examine the various facets involved. By isolating these elements in this manner, we can discuss each in depth, without the issues and complexities associated with the performance as a whole unnecessarily obscuring our investigation.

### 3 Performance Triad Model

Working with digital technology in performance opens up new opportunities to investigate modes of interaction that exaggerate or break from those experienced in day-to-day life. Performance imposes its own aesthetic and practical constraints, but these are different from those most often associated with computing research. In computing, the demand for face validity, an implied potential utility, restricts the freedom with which we can explore particularly the new forms of interaction afforded by technology. For many the only alternative seems to be purely technology driven exemplars, with a thin veneer of utility! What our digital performance art experiments do is explore the issues around this — the technical requirements and infrastructure, the novel modes of interaction and their new cognitive demands, and the effects of these on social relationships. The Performance Triad (PT) model is the culmination of our initial research of human-computer interaction (HCI) in digital performance.

The PT model raises the technical and practical issues associated with the development and analysis of technology-based performance (Figure 1). In the PT, the observer, participant and performer are equal collaborators in a performance, which lies at the heart of the triad. A performance is, by definition, that which is present between performer, participant and observer. The performance as a whole exists in a particular context and the context occurs within and creates an environment. The model also includes three separate technology layers by which humans interface with the performance, each of which may be of different complexity, sophistication and extent.

This model has a wide variety of uses in the development of complex technology-based performances. As a representation of the performance itself, the model can help promote understanding of that particular performance and all its associated elements. This offers us the ability to investigate the *tripartite interactions* (interaction between performers, participants and observers), and how context and environment affect such activities. In addition to this, it is possible to consider the role technology might undertake in mediating such interactions. The model affords a structuring of experience which is highly valuable in the planning and development of future performances by building on knowledge and experience gained from previous work. Finally, the model provides a common language for the discussion of technology-based performance which supports discourse between performers, curators, technologists, researchers, theorists and so on.



**Figure 1:** Performance Triad model for the development and analysis of technology-based performance.

In this paper however, we utilize the PT model to deconstruct performances in playful arenas in order to gain a deep insight into their complex structures, anatomies and behaviours. This allows us to separate the various human, technological, contextual and environmental elements of a performance and to execute an in depth investigation of each.

### **3.1 Technology**

Technology is a fundamental yet flexible bounding element of the PT model. The role of technology is to mediate the interaction and interfacing between the people involved in a performance and the performance itself. In this role, technology can support the integration of performers, participants and observers into the performance. The type of technology used in such interfacing will depend upon the extent to which the different people are to be incorporated into the performance as well as the mode of interaction required. Performers, participants and observers form the edges of the technology triangle and play an essential role determining our expectation of the performance. The most popular of these connections are discussed in more detail here.

#### *3.1.1 Interaction between Performer and Performance*

This is perhaps the most widespread and diverse method of technology-based interaction in performance. The purpose of these technologies is to support the performer in creating the performance, telling their ‘story’, imparting a message or engineering an experience.

#### *3.1.2 Involving Participants using Interactive Technologies*

Using interactive technologies in playful arenas engages participants in the performance in a controlled manner. Participants differ from performers in that they are not usually ‘scripted’ into the performance. While they may begin as an outside observer, once they physically interact with the technology they become a participant.

### 3.1.3 Encouraging Observer Engagement with Performances

When interaction is purely observational, performances tend to involve video displays, computer graphics, audio presentation and so on. However, wireless technologies are beginning to stretch the boundary of observational engagement in performance.

## 4 Performers

Clubs are spaces where watching and being watched are central tenets. They are places where we observe ourselves and lose ourselves in being observed simultaneously. The liveness of performance no longer lies with the official stars of a club night. The DJs, those paid to appear as licensed performers, are more often than not tucked away, obscured from view, minimal figures on a darkened stage. They play recorded music and any attempt at 'live' reproduction is seen as false. In response to this shift, the performative element of a club night often emanates from the crowd. The gaze is turned back on the observer. As Tony Wilson suggested in Sheryl Garratt's [1988] *Adventures in Wonderland*, the emphasis is no longer with four band members on stage in the spotlight but with the crowd itself. He called it a 'democratic art form' where the people are the spectacle, the participants, or spect-actors (to borrow a term from Boal [1979]) — those who act.

It is worth remembering that whilst performative behaviour may well be central to the club experience, rarely do people choose to go to a club in order to engage in rehearsed, planned or prepared performance of a theatrical nature. If a club welcomes performers and if promoters book acts or artists, it is usually with a view to decorating the space and enhancing the visual element of the event. It is not uncommon for clubs to provide stilt walkers, professional dancers, jugglers and so on to add to the sense of spectacle and carnivalesque. However for most it is essential that performative work does not prevent the clubber from his or her main activity — that is, enjoying a night out dancing with friends.

### 4.1 Participants

It is not unusual for clubbers to adopt 'alter egos' as they prepare for their night out, and in such roles actively participate in both the event as well as any sense of formal performance therein. Dressing up, costuming and masquerade are all common features of a club night and are often taken to extremes by clubbers adopting and staying in role for the duration of the event. As Matthew Collin [1997] says, rave fulfils 'the role of fantasy theatre, a place where people (can) become the magical characters that their everyday lives would not allow'. This state of mind, this willingness and desire to play and perform is a concept which can be utilized when creating site-specific installations and performances. The artist becomes the facilitator; the artwork becomes the vehicle for the clubbers' innate sense of expressivity.

Most notable to participant acceptance of technology-based performance is the participant's particular background and experience with technology. Whether someone is a technophobe or technophile affects his or her expectation of the technology in the performance and how they approach interaction. In the case where

the technology is hidden, a participant's mental model is based solely on observable phenomenon.

## **4.2 Observers**

Observers are defined as the people present at a performance who do not engage with interaction or who do not undertake any performative action. In traditional performance environments, the boundary defining an observer is often fixed and rigid. Take for example a member of an audience at a theatrical performance. Participation and performance on the part of audience members is mainly undesired and thus not encouraged. In playful arenas on the other hand, participation and performance are fluid and individuals can rapidly move from 'observer' status to become a participant or even a performer.

## **4.3 Context**

Performance in the post-modern age is no longer restricted to the firmly bounded world of the theatre stage. If we are to understand the world of performance in all its guises and the world as performance, then it is not difficult to perceive clubs as informal stages that give license for people to revel in spectacular society. If, according to Peter Brook [1968], the Deadly Theatre is one which makes people smile out of recognition and familiarity and the Living Theatre is one that moves and becomes a moving force in the world, then a club has the potential to house permeable, flexible, innovative and startling performative events. This is our context as outlined in the Performance Triad. In our model context is understood as the social, cultural and conceptual placement in which the performance finds itself. A performance may take place in a gallery context, a theatrical context, a pedagogical context and so on. Each of these contexts is associated with its own unique features, dynamics, implicit and explicit rules as well as accepted behavioural norms and conventions.

## **4.4 Environment**

Environment is the physical space and location in which a performance finds itself. Each environment is associated with its own unique set of properties and constraints. The environment of a performance is often linked to the context of that performance, in that particular contexts are often associated with particular environments. For example, a play is usually performed in a theatrical context in a theatre. However, this is not always the case in that our hypothetical play could actually be performed outside in a park.

Probably the most unpredictable factor that can negatively affect a technology-based performance is the environment. The technical components for a performance may run well in a lab, studio or theatre but because of the unpredictable nature of playful arenas, testing a performance in the real world is essential to ensure that the environment is not adversely affecting the technology, performers or observers.

Many technologies are not good at coping with unpredictable events where the dynamism of a playful environment can affect the technology and thus the performance. Technically speaking, fixed locations are much easier to deal with since the technology can be produced to fit predictable events occurring in the

environment, such as in 'zones of interaction' or hot spots so that events are predictable and fixed. However, in flexible environments events are often more spontaneous and unpredictable, often creating a tension between performer and participant/observer. A good example of this tension is in *Schizophrenic Cyborg*.

## 5 Schizophrenic Cyborg

Since we were interested in developing a guerrilla performance that capitalized on an audience's misconceptions about wearable technology, we determined that we needed to design a piece which encouraged participation through a solicitation of appeal, whether physical, emotional or psychological and that we should focus on how to solicit participation between observers and observed. We came up with the idea of a wearable computer user as a 'cyborg': cyborg not really a 'self' at all but rather part of a larger collective; and, cyborg as technically dependent on a parasitic 'other'. Wireless technology could provide a ubiquitous, hidden link between cyborg and 'parasitic other', where the parasite controlled the cyborg and conversely the parasite was dependent on the cyborg for stimulation. A wearable display would reveal this tension in technical dependency between cyborg and parasite and encourage interaction between the cyborg and observers.

### 5.1 Procedure

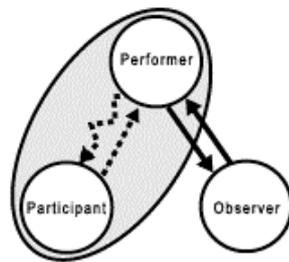
Our scenario presented an interesting problem; since we were not conducting an empirical study, we were unsure as to how to collect and evaluate our data. Conventional empirical research seemed inappropriate for this type of study. As a result, we decided that we would observe interaction between participants, performers and observers and record our data on paper and with a video camera. We anticipated that this performance would lead to issues about how to evaluate performance-based HCI.

### 5.2 Participants: Deconstructing Tripartite Interaction

Our performance, *Schizophrenic Cyborg*, required three types of people: a participant (parasite); a performer (cyborg); and, at least one observer (audience). For our performer, we needed someone who was willing to participate in a live, unplanned performance in a public space. Also, we hope to involve someone who was knowledgeable about the wearable computer without knowing its technical specifications and who did not consider him or herself to be an artist. We considered that this type of person would be less apt to bore an onlooker with technical details about the hardware and to behave naturally during the performance. We compiled a list of people whom we thought would be appropriate and then approached these people. Because of the high cost and fragile nature of the technology we used in the performance, we hand selected our participants from a list of people we generated in our brainstorming session. From those we asked, only one agreed to participate as a cyborg. Our parasitic participant acted as the 'control centre' for the performance had extensive experience setting up and running a wireless local area network (LAN). A member of *thePooch* agreed to be this person. Unlike conventional empirical research, we could not control, select or predict our observers. Observers were made up of the random people who turned up at the event.



**Figure 2:** Cyborg performer and his wearable public display.



**Figure 3:** Tripartite interaction in Schizophrenic Cyborg. Solid lines represent physical interaction; broken lines show digital interaction; straight lines show visible awareness; and, jagged lines represent hidden awareness. The oval highlights the physical/digital dependency.

### 5.3 Method

The cyborg used a wearable computer and positioned the display on a utility vest facing forward so that observers could see the display as they approached him (Figure 2). The cyborg wandered through the environment with the public physical display on his belly. Because of the positioning of the display, only the observers could see the information on the display and not the cyborg himself.

The parasite was in control of the information shown on the display. The parasite hid somewhere in the room so that they were not visible to outside observers and observers were unaware that a parasite was in control of the display (Figure 3). The parasite displayed still images, text or video selected from a collection of saved media or he selected media from the inscribed environment in real time. Although the cyborg was aware of the parasite's existence, they could not directly control or affect the information that the parasite chose to show on the display.

The cyborg and the parasite were encouraged to behave as they normally behaved in social settings. However, the parasite had to maintain enough distance

between himself and the cyborg so that observers could not make any connection between the two parties.

During the performance, we did not provide any signage or information about the purpose or function of the wearable computers. However, we did post signs inside the venue that informed attendees that the event was being videotaped.

This work has an intrinsic subjectivity in that one of the crucial aspects is the participants' feelings. John Searle, famous for his Chinese Room Argument, distinguishes two types of subjectivity: epistemic and ontological [Searle 1997]. A statement such as "I think the Empire State building is 1273 feet tall" is epistemically subjective — it is a matter of belief. In analysis, science prefers epistemic objectivity — the measured height of the building. However where personal preference, aesthetics, pain or other feelings are the domain of discourse, as in this work, then we have ontological subjectivity — where the subjectivity is the very essence of the thing being studied. In such cases it is essential to gather subjective data although we of course need to exercise caution when interpreting it.

#### **5.4 Measures**

To record our data, we used qualitative procedures, including observations and interviews. We recorded observations during the event with a video camera and on paper. At the end of the event, an investigator conducted a short interview with the performer, participant and about five observers via face-to-face conversation and through email. Using multiple forms of observation and data collection allowed for detailed evaluation and analysis of user behaviour and interaction.

#### **5.5 Technical Specifications**

The parasite was linked to the cyborg over a wireless LAN network. The cyborg node required a display and a RealVNC server running on a wearable computer. VNC (Virtual Network Computing) software makes it possible to view and fully-interact with one computer from any other computer or mobile device anywhere on the Internet. The parasite node required a laptop and VNC client running on the computer. The changing lighting conditions of the environment required that we obtain a Xybernaut high-resolution, flat-panel display.

#### **5.6 Observations**

Over 200 technologists and artists from around the UK attended the event and since it was licensed, all attendees were over the age of 18. Attendees came from a wide variety of professional backgrounds (computer scientists, sociologists, artists, philosophers, engineers) and had diverse social and ethnic backgrounds.

##### **5.6.1 Cyborg Experience**

When telling investigators about his experience, the cyborg highlighted his conflicting and inconsistent emotional state: one minute he felt excited and aware and another he felt frustrated and out of control.

He expressed his experience in terms of how comfortable and natural interaction felt with observers. When the parasite posted text messages, he said that the conversation felt natural and very comfortable; having the display as a teleprompter for conversation meant that conversation lasted longer since observers

were constantly prompted with new discussion points. Even when observers discovered that a parasite was controlling the conversation, observers were content to continue conversation. It was often the case that the parasite couldn't keep up the natural conversational exchange between observers and the cyborg, which was not surprising since there was no audio connection between the two. This resulted in the participant posing questions that didn't follow natural conversational progression. However, rather than this hindering conversational exchange, the cyborg said that he found this highly entertaining for both themselves and observers:

“From (observers) perspective, they saw a strange looking person who wanted a hug. From my perspective, I was only aware that ‘I’, or the cyborg within, wanted a hug, after it was received, and needed to adjust my reaction accordingly.” (post performance interview with a cyborg)

When observers were relying on the display to direct conversation, the cyborg felt a high level of frustration in that he couldn't control the discussion. As conversation progressed, he felt a ‘role reversal’ and that he had become the ‘object’ of conversation and the participants had become the ‘subject’; the cyborg felt like he wasn't a part of the shared experience.

During the interview, the cyborg often referred to the parasite as the cyborg rather than himself. He saw his role as a ‘conduit for communication’ rather than as a performer.

### *5.6.2 Parasite Experience*

The remote display allowed the parasite to behave in ways in which he felt he would be unable or afraid to outside of the performance. Initially, parasite said that he wanted to act like cyborg's subconscious; where text on the display reflected what the cyborg was possibly thinking. The parasite said he switched images and text quite rapidly in an attempt to try and keep observers and the cyborg interacting. But in many cases, the parasite found it too difficult to keep up with conversation, so he resorted to writing suggestive comments in an attempt to regain observers' attention.

The parasite acted fairly subversively. Since he was removed from the immediate situation, he knew that the cyborg was the only person that could hold him accountable for unwanted or negative responses from observers. Because of this, the parasite said that he was interested in seeing what he could get away with saying.

As well, he said he was tempted to provoke more private conversation as interaction continued. One way of doing this was to send more and more personal information about the cyborg or suggestive comments about the observer.

### *5.6.3 Observer Experience*

All of the observers, including several technical experts, said that on their initial encounter with the cyborg, they believed that the conversation was only between the cyborg and themselves. They assumed that the wearable hardware was either controlling something technical in the room or was some kind of communication device.

Initially, observers refused to believe that the cyborg didn't have any control over the public display. They asked the cyborg to take his hands out of his pockets

or prove in some way that he had nothing to do with the media being shown. How quickly observers accepted that someone else was in control of the display usually depended on their technical background: expert computer users believed that the cyborg had no control more quickly than beginner users.

The type of text message displayed provoked different types of emotional responses from observers. Observers said that they found the experience very ‘creepy’ particularly when the text on the display reflected something unique and personal about the observer. As well, simple questions provoked them to approach the cyborg and begin conversation.

How observers responded depended on their familiarity with the technology, their technical background, and their awareness of the existence of a hidden parasite. Many artists wanted to know more about the symbolic significance of the performance whereas technologists were more interesting in knowing about the technical aspects.

#### 5.6.4 *Affect of Varying the Type of Media on the Cyborg Display*

The wearable display prompted various types of interactions based on the type of media shown. Text messages acted like a teleprompter for observers. For example, if the display suggested, “ask me what I am doing tomorrow” or “ask me why I am doing this” the observer obliged. On several occasions we observed interaction moving from cyborg as subject to cyborg as object. This occurred because of the appealing nature of the display; initially, the display *tempted* observers to interact with cyborgs through personalized text messages (I like your hat. Nice pair of red boots). After approaching the cyborg, observers would wait for the display to pose another question or statement and increasingly paid less attention to the cyborg himself.

A different type of interaction occurred when the parasitic participant streamed video of the inscribed environment in real time. We noticed that when some observers realized that the video was a live stream, they wanted to become part of the display and would search for cameras around the room and then dance or gesture in front of them.

Showing still images on the display had less of an effect on performer-observer interaction. Some observers commented on the image, but the image didn’t seem to direct conversation in any particular way.

## 6 Discussion

The asymmetric, tripartite interaction between the cyborg, parasite and observer breaks and challenges ‘normal’ interaction and for the cyborg causes a dislocation between ‘I’ and ‘me’. This dislocation is evident in the quotes we have seen cyborg’s post event interview. In one he says “as a schizophrenic cyborg” at once identifying himself and yet also distancing the “internal self or ‘I’ from the external self as acted on and observed by others, the ‘me’”. This equivocal relationship continues “I was instrument” — the active ‘I’ becomes subject and passive. In the second quote he says “From (observers) perspective ... from my perspective ...”. He feels that only by perceiving others reactions could he know what the ‘I’ wanted.

## 6.1 Levels of Awareness

An underlying issue in tripartite interaction and with the wearable technology itself is identifying levels of awareness. When is it important for an observer to be aware of who is in control of the technology or of the hidden participants? How does this change interaction? At what point is it important that observers understand interaction? What is their mental model of this interaction and how do they come to this conclusion? At what point to observers see the screen as having interactive qualities? As we soon discovered, our performance prompted more questions than answers!

The reader of an earlier version of this paper asked how this performance differed from having a ‘kick me’ sign posted on someone’s back. While *Schizophrenic Cyborg* was indeed created to generate, in some cases, comical and potentially embarrassing situations, observers were tempted into interacting with a hidden participant while being engaged in conversation with a present other. Observers have to come into interaction with the display. Once this happens, levels of responsibility change: Who is in control? Who can be trusted?

These confusions do not happen with the ‘kick me sign’; a static sign or message may invite interaction, but is not, except in a very long-term sense, part of interaction. As noted above, static images on the display similarly were objects of discussion but not utterances in the dialogue. Previous knowledge and cultural expectations are important here too; even the streaming video elicited a response from the observer more like that we would expect if the display were mounted on a wall. The observers understood ‘television’ and this was then perceived as a television that happened to be mounted in someone — Teletubbies indeed! However, when text is displayed that acts in ‘conversation’, the observers are being called to interact with an agency that is ‘behind’ the display when what is ‘behind’ the display is the performer himself. With no previous experience to help the observers were faced with two human agencies occupying the same physical space were often unable to separate the two. *Wearing* the display is not the important issue here; interacting with the display when the wearer is not in control of the display is the issue.

Revealing this spectatorship through hidden technology often brings in to question our notion of accountability and awareness. In some cases, an awareness of the hidden aspect of the technology causes performers to act more subversively. If hidden participants know that they cannot be held immediately accountable for their actions, they often ‘misbehave’. This in turn encourages performers to misbehave. The misrepresentation of control causes both participants and performers to act subversively from within the performance parameters, to see what kind of reactions they could get from observers. Clearly elements of both dark and invisible play are at work here, reinforcing our understanding of the performative act as one that is slippery, malleable and ultimately dialogic in nature. For us as researchers it raises particularly interesting questions about control, authority and authoring of the performance text.

## 6.2 Evaluation Issues

We have clearly gained valuable insight through the *Schizophrenic Cyborg* performance. However this is hard to quantify. Was it a success? Evaluation

demands valuation and how do we measure the value of such guerrilla performances? In a playful arena people had fun, but clearly a beach-ball may have had equal affect — what is the ‘control’ or baseline? Another measure is the artistic merit and here there is an external measure. The performance has been invited to further arts events; amongst other competing performances this has been chosen — an objective measure of subjective satisfaction by the arts community. As is evident these issues of value in an intensely subjective arena are intensely problematic.

## 7 Future Considerations

We are in the process of improving the performative aspect of *Schizophrenic Cyborg* as well as its costume and technical components. We expect to perform at various arts and technology performance events and conferences over the next year, which will help us to evaluate and to improve upon our PT model.

In future performances, we would improve on our technical components, particularly data capturing techniques. We would like to log all of the messages sent to the cyborg display and match these to observer reactions.

Since the display screen was a bit difficult for observers to read, we would like to experiment with brighter displays. Integrating the display into the cyborg’s clothing would also increase the comfort level for the cyborg.

Finally, we would like to improve the sound quality, integrate speakers into the cyborg’s outfit so that we can generate audio files, and perhaps outfit the cyborg with a higher quality microphone.

## 8 Conclusions

Dance music and the subcultural styles that attend it have always provided rich sites for innovative practice. DJs, musicians, artists and producers constantly seek new styles, new forms, and new methodologies to attract and maintain audiences each weekend. Dance music is constantly reinventing itself, surfing the waves of cultural and social change as it does so. A DJ and his decks is a fitting example of how man and machine work together to create something fresh and vibrant, rooted in the here and now, in order to promote and stimulate a collective response in the form of social dancing. This living and fluctuating context provides us as researchers, performers and artists with immensely exciting possibilities. Performance and play can be read as basic human functions. They fulfil a need in us for self-expression. They allow us to challenge, confirm and confront our own identities in dialogue with other people. We perceive clubs as spaces which, potentially, have similar properties, similar functions. By marrying technology, performance and club culture we are not only able to draw on a diverse range of theory and understanding from each field but are also able to learn from each others’ disciplines and working practices about what it is to be human. In a world which is seemingly driven and dominated by machines, where the individual can feel powerlessness in the face of complex technologies of varying kinds, our intention is to reconsider the performative conversation that might take place between man and machine and see how that might impact on our understanding of ourselves, each other and of the world around us.

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## References

- Attali, J. [1985], *Noise: The Political Economy of Music*, University of Minnesota Press.
- Boal, A. [1979], *Theatre of the Oppressed*, Pluto Press.
- Brook, P. [1968], *The Empty Space*, Penguin.
- Buckland, F. [2002], *Impossible Dance: Club Culture and Queer World Making*, Wesleyan University Press.
- Collin, M. [1997], *Altered State — The Story of Ecstasy Culture and Acid House*, Serpent's Tail.
- Flintham, M., Benford, S., Anastasi, R., Hemmings, T., Crabtree, A. & Greenhalgh, C. [2003], Where On-Line Meets On-The-Streets: Experiences With Mobile Mixed Reality Games, in G. Cockton & P. Korhonen (eds.), *Proceedings of 2003 Conference on Human Factors in Computing Systems (CHI'03)*, *CHI Letters* 5(1), ACM Press, pp.569–76.
- Garratt, S. [1988], *Adventures in Wonderland: A Decade of Club Culture*, Headline.
- Hill, L. [2001], *Guerrilla Performance & Multimedia*, Continuum International.
- Lock, S., Rayson, P. & Allanson, J. [2003], Personality Engineering for Emotional Interactive Avatars, in C. Stephanidis & J. Jacko (eds.), *Human-Computer Interaction, Theory and Practice (Part II). Volume 2 of the Proceedings of Human-Computer Interaction International 2003*, Vol. 2, Lawrence Erlbaum Associates, pp.503–7.
- Mann, S. & Niedzviecki, H. [2002], *Cyborg: Digital Destiny and Human Possibility in the Age of the Wearable Computer*, Doubleday.
- Mann, S., J., N. & Wellman, B. [2003], Sousveillance: Inventing and Using Wearable Computing Devices for Data Collection in Surveillance Environments, *Surveillance and Society* 1(3), 331–55.
- Pompei, F. J. [1999], The Use of Airborne Ultrasonics for Generating Audible Sound Beams, *Journal of the Audio Engineering Society* 47, 726–31.
- Searle, J. [1997], *The Mystery of Consciousness*, Granta.
- Sheridan, J. G., Lafond-Favieres, V. & Newstetter, W. C. [2000], Spectators at a Geek Show: An Ethnographic Inquiry into Wearable Computing, in T. Starner, C. Thompson, B. MacIntyre & B. Iannucci (eds.), *Proceedings of the 4th International Symposium on Wearable Computers (ISWC 2000)*, IEEE Computer Society Press, pp.195–6.
- Wren, C., Sparacino, F., Azarbajani, A., Darrell, T., Starner, T., Kotani, A., Chao, C. M., Hlavac, M., Russell, K. & Pentland, A. [1997], Perceptive Spaces for Performance and Entertainment: Untethered Interaction using Computer Vision and Audition, *Applied Artificial Intelligence* 11(4), 267–84.



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