# The Postmodern Panopticon: Surveillance and Privacy in the Age of Ubiquitous Computing

*A. Albrechtslund*
*Aalborg University*
*Kroghstraede 3, DK-9220 Aalborg Oest*
*Denmark*
*Telephone: +45 96 35 80 80*
*E-mail: alb@hum.aau.dk*

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Abstract: This paper offers a discussion of surveillance and ethics in an environment of ubiquitous computing. As a starting point, the famous prison design by Jeremy Bentham (1748-1832) known as 'Panopticon' is studied and discussed, together with Michel Foucault's (1926-1984) reintroduction of the concept 'Panopticism' in the twentieth century in order to describe the utilitarian architecture's general principles of power. The study of the prison design is followed by a similar study of the so-called 'ghosts' of the DELCA Ghost Project at the IT University of Copenhagen, Denmark (ITU), and similarities and differences between the two designs are highlighted. It is concluded that the ethical discussion concerning surveillance in the technologically enhanced environment of the DELCA ghosts can with advantage be raised to a conceptual level. Panopticon, and for that matter 'Big Brother', are powerful metaphors that predominantly frame the ethical debate, and it is argued that we must develop and broaden the conception of surveillance. Other metaphors should be added in order to more adequately reflect the characteristics of surveillance in an environment of ubiquitous computing, and the metaphor 'Big Mother' is introduced to emphasize the caring aspects of surveillance in addition to the more often described aspects of control.

**Keywords: Surveillance, Panopticon, virtual assistants, ethics, privacy, ubiquitous computing.**

## INTRODUCTION

How do new technologies and practices change surveillance and what are the ethical consequences? This question forms the basis for this paper. There are many answers to this question due to its broad definition and the conference theme 'New surveillance technologies and new technologies for security and privacy' will probably reveal a number of them. I hope my relatively narrow approach to the theme will have a limited but precise outcome that can be a starting point for a broader discussion of technology, surveillance and ethics. The focus of this paper is on environments of ubiquitous computing, and the study object is the so-called 'ghosts' of the DELCA Ghost Project at the IT University of Copenhagen, Denmark (ITU).

The system of DELCA ghosts is a prototype designed specifically for ITU, and it can thus be interpreted as a virtual extension of the building's architecture. Therefore, I find it to be good starting point to study another building, the Panopticon, the famous prison design by Jeremy Bentham (1748-1832) that has been famously reintroduced and reinterpreted in the twentieth century by Michel Foucault (1926-1984). Both Bentham and Foucault argue that Panopticon is not just a building, but also a principle of power that exercises control through surveillance and discipline. The principle of power, Panopticism, can be used in many contexts, and Foucault takes the concept even further by describing modern society as predominantly panoptic. My intention is to study the two buildings, Panopticon and ITU, in order to highlight the conceptual similarities and differences between the two.

Central to the ethical debate concerning surveillance has been the concept of privacy. However, other issues have frequently been discussed, such as security concerns and problems related to the lack of trust or confidence in systems – in this case the DELCA ghosts. The university and the ghost project is an excellent 'laboratory' for research in surveillance, and it offers the possibility to

find and test constructive ways to deal with the privacy issue and other aspects of surveillance. In this paper, I furthermore suggest that the ethical question concerning surveillance in the age of ubiquitous computing should be raised to a conceptual level. Towards the end of the paper I will introduce an alternative metaphor to Panopticon and the equally prevalent Big Brother, since these two very powerful metaphors, in my opinion, play too prominent a part in the ethical debate. The metaphor 'Big Mother' offers a possibility to emphasize other ethical aspects concerning surveillance in the age of ubiquitous computing. Surveillance is a tool for control, and enhanced monitoring and tracking can lead to frequent invasion of privacy and thus produce ethical problems, but on the other hand, surveillance also offers an environment of care, and this aspect of surveillance seems to be somewhat neglected. Turning the attention to the caring side of surveillance, the DELCA ghosts at ITU are an interesting testing ground for the surveillance impacts of ubiquitous computing in a largely peer-driven and narrative universe. This preliminary study aims at outlining some developments in the character of surveillance as well as the very early steps in the shaping of a novel ethical scenario.

## PANOPTICON: THE BUILDING

The famous Panopticon was designed by Jeremy Bentham, British jurist and philosopher, towards the end of the eighteenth century. It is a type of prison, also known as the 'Inspection House', which enables an observer to watch all the prisoners without their knowledge. This essential principle of construction is reflected in the Greek neologism, *pan-* meaning 'everything' and *-opticon* concerning 'vision', and as such the word is meant to express 'the all-seeing place'.

Bentham is also known as a founding father of the ethical theory of utilitarianism and it is in light of this theory that Panopticon should be understood. The basic principle of utilitarianism is, of course, that any moral behavior is defined according to its utility. The utilitarian principle is expressed in the prison building, because the design facilitates effective surveillance and control with the least possible human resources. Moreover, the goal is to punish effectively, but with the least human suffering, since the development from physical torture to systematic confinement by most is considered a humanistic improvement in the history of punishment[1].

For his time, Bentham was a controversial figure, and his prison design stirred attention. Bentham proposed a universal solution to the problems of his day:

> 'Morals reformed – health preserved – industry invigorated instruction diffused – public burthens lightened – Economy seated, as it were, upon a rock – the gordian knot of the Poor-Laws are not cut, but untied – all by a simple idea in Architecture!' (Bentham 1995)

Not only would Panopticon solve the pending problem of what to do with prisoners, the utilitarian architecture provided answers for broader political questions. The jails of this time were brutal, unsanitary and overcrowded, which is why humanitarian improvements was on the political agenda, and in this context Bentham's prison building offers am more humane alternative. Panopticon made possible that prisoners could remain on British soil, rather than for instance be deported to Australia, which was a somewhat popular idea at the time, and equally important, the utilitarian prison provided an alternative to prison reforms involving the Church.

However, Bentham was unable to persuade the political establishment that the Panopticon would suffice. The decisive issue in the rejection of Bentham's plans was not the prison design and its utilitarian ideas as such, but the other part of the project, namely that Panopticon should be open to private contractors. He imagined the prison as a private, profit-seeking enterprise, making money from the labor of the prisoners, and Bentham himself wanted to be the first contractor. It was this financial element that was turned down, because the thought of commercial gain from running prisons was considered inappropriate; the authority and control of prison labor was best kept at bureaucratic hands, and prisons should not meet economic criteria. Even though Panopticon was rejected by Bentham's fellow countrymen, the blue print of the prison has been very influential in Great Britain as well as other countries around the world. This is among other things due to its effective application to most kinds of institutions where people are to be watched.

[1] We shall be reminded that this has actually been disputed by Foucault and others. According to Foucault the change from physical torture to systematic confinement is not necessarily a humanistic improvement, but rather just a different way to exercise power (Foucault 1975).

The prison was designed to have an inspection tower in the middle surrounded by a circular building with the cells. The observer (in this case the prison guard) should be placed in the tower and the prisoners isolated in the cells, and all the cells should be visible at any time from the tower in the middle. As much as possible of the cells are visible, whereas the tower is designed to be invisible from the cells, using screens and light as devices to hide the guard from the prisoners. This principle – that the prisoners do not know if they are being watched or not – is essential to Panopticon. The prisoners are forced to presume that they are being watched and behave accordingly, which actually renders the guards superfluous, since the prisoners in a way have internalized the inspection by the guards; the prisoner carries his own surveillance. It should therefore be emphasized that Panopticon is not just the guard watching the prisoners; all personnel and all prisoners as well as the building, that is, the prison as a whole, makes up the panoptic structure.

Bentham was mainly occupied with prisons, but the utilitarian design would in principle be useful everywhere, and factories, military barracks, schools, and hospitals are institutions where the panoptic design would have obvious advantages. For example, the building principles show their worth within the health services, because the transparent construction makes possible for the personnel at hospitals to watch all the patients at the same time and thus improve the course of treatment. At the same time the division of patients into separate 'cells' (wards) is an important instrument in reducing the infection. As Foucault has worded it, 'The hospital … is no longer the mere roof that accommodates the misery and the impending death. It is in its materials a therapeutic means.'[2] (Foucault 1975, p.203)

We must conclude that Bentham's Panopticon, that is, the specific prison design, was never realized. Bentham had his hopes up, but the utilitarian building was not to make him a wealthy man. Very few prisons were built that were directly influenced by Panopticon, but a few were, for example Eastern State Penitentiary in Pennsylvania, USA. However, many prisons, factories, military barracks, schools, and hospitals all over the world have been indirectly influenced by the panoptic principles from Bentham's prison design. As such, the Panopticon is an architecture of the past, but Panopticism is a principle still alive today.

## PANOPTICISM: THE PRINCIPLE OF POWER

In his very influential book *Discipline and Punish* (1977; original French version *Surveiller et punir* 1975) Foucault maps the European history of criminal law from medieval physical torture to modern day imprisonment. It is the history of the development from public, spectacular, and instantaneous punishment – e.g. to cut off limbs – to systematic confinement, hiding the criminals in prisons for a duration of months or years. Foucault describes Panopticism as a new political anatomy where discipline replaces the earlier sovereign power (e.g. the king) that was manifested in pomp and circumstance. In the place of the sovereign was put a more subtle and hidden authority that exercised its power by objectifying and creating knowledge on those the authority desired to control. Therefore, Panopticism is a disciplinary power that aims to train and manipulate the body, and Panopticism thus has both a negative and a positive function. The negative is to set up certain limits necessary for maintaining discipline, and the positive function is the production, which is the outcome of strict discipline. For instance in the hospital the disciplinary power shows itself in a number of ways, since many limitations are necessary to maintain order and to obtain the goal of the hospital, which is to produce health – similar to the prison's production of lawful citizens, the school's production of knowledgeable students, and the army's production of destructive ability. The disciplinary power has a series of means including drills, constant reports, testing, regulation, and not least surveillance, which plays a prominent part as a kind of 'visibility instrument' that ensures individual control. The disciplinary power thus mainly exercises its power through the gaze, more specifically the all-seeing eye.

It is remarkable that Bentham is so obviously inspired by Christianity, since he is a declared secular thinker (Lyon 1991, p.599). Like many other social thinkers of his time, he was occupied with providing an alternative to the theologically dominated society by replacing religion with reason. Even so, Bentham's conception of the comprehensive gaze is inspired by God's omniscience, and he even quotes the biblical Psalm 139:

[2] My own translation : "L'hôpital … n'est plus simplement le toit où s'abriaient la misère et la mort prochaine; c'est, dans sa matérialité même, un opérateur thérapeutique.'

> 'Thou art about my path, and about my bed: and spiest out all my ways. If I say, peradventure the darkness shall cover me, then shall my night be turned into day.' (Psalm 139, cited in Lyon 1991, p.599)

There seem to be some religious undertones when Bentham assumes that the constant gaze of the inspector will discourage prisoners to do evil – and perhaps even remove the incentive to think about evil deeds. Since the constant gaze of the inspector can hardly be realized, because continuous supervision would be unpractical and expensive, Bentham comes up with the essential principle that the supervision only needs to be in the *minds* of the observed. God's omnipresent eye is thus replaced with the internalization of the observer's potential gaze in the mind of the observed. Bentham rejected Christianity as a solution for social problems in the society, but even though reason replaces religion, some of the useful social functions performed by Christianity could with advantage be kept – just without its religious core. God's eye was thus transformed to a secular context with the Panopticon (Lyon 1991, p.599).

To sum up the characteristics of Panopticism, at least four points can be made: 1) The observer is invisible or is at least not very visible; 2) the observed is kept conscious of being visible and the practical surveillance can thus almost be omitted; 3) surveillance is automated, since the observed carries his own surveillance; 4) surveillance is depersonalized, because the observer's identity is unimportant, and this anonymization of power actually gives Panopticism a democratic dimension, since everybody can in principle master the observation. The prison is really just the prototype of Panopticism, where discipline, normalization, and surveillance come together. Foucault then asks the polemic question, why factories, military barracks, schools, and hospitals has a striking resemblance to each other (Foucault 1975, p.264). Foucault's answer is that Panopticism has become general and is found everywhere, and that we therefore live in a prison-like society, which is founded on discipline and surveillance. The formation of this society stems from many historical processes, but it is a surveillance society and its purest form is the prison.

## ANOTHER BUILDING: ITU AND THE DELCA GHOST PROJECT

The IT University of Copenhagen (ITU) is a new academic institution in Denmark that focuses on IT and the opportunities it offers. It was founded in 1999, and after a few years in rather modest offices in the northwestern part of Copenhagen it moved into a newly erected building in 'Ørestaden' in the southern part of the city. This part of Copenhagen is completely new, and it is known to be the home of innovative companies and an international environment. Besides ITU, it is home to several research institutions, including part of the University of Copenhagen (the Faculty of Humanities). The mixture of research and business, ideas and money, has been fertile ground for a number of experiments focusing on IT. One of these experiments is the DELCA Ghost Project that was initiated in 2003 and has been in development since.

DELCA is an acronym for 'DisEmbodied Location-specific Conversational Agents'. The ambition of the project is to design software creatures known as 'ghosts', and the purpose of these intelligent agents is to be 'living' (or perhaps 'living-dead'?) assistants to students, staff, and visitors at the University. The ghosts have different names and 'personalities': some ghosts are supposed to locate and guide people to their destinations; other ghosts can help solve certain problems such as finding the right printer; and yet other ghosts have more entertainment oriented tasks such as generating music on request, playing games, and just having light conversation. Of course, the potential of such ghosts, if developed satisfactory, is far-reaching, and DELCA should be seen as a pilot project investigating the challenges in and possibilities of location-based personal assistance.

The technical aspect of the ghosts is explained in the name 'DELCA'. The ghosts are 'DisEmbodied' in that they are not physical creatures and thus not restricted by the laws of physics; they are 'Location-specific', which means that they can monitor the indoor location of users; they are 'Conversational' because they can communicate verbally with users, and the goal is to give the ghosts the ability to master so-called natural dialogue; they are 'Agents' to students, staff and visitors at the university because the ghosts should assist and entertain. The ghosts can express themselves by using different visual and audible means, e.g. through advanced speech synthesis, and they can make contact via mobile phones, PDA, and computers (portable and stationary). Over time, the ghosts will develop their 'personality' in accordance with biomimetic principles. The ghosts can earn or lose credits through implicit and explicit feedback; if the ghosts misbehave or malfunction, they will be punished, and if they perform satisfactory, they will be rewarded.

The architecture of ITU reveals a design philosophy that focuses on transparency, which of course invites a direct comparison with Panopticon. The university is designed by Henning Larsens Tegnestue (HLT A/S), and similar to Bentham's prison design, ITU is designed to be visually open. A metal clad frame folds around the building, and inside the frame is a glass façade with horizontal ribbons of glass in varying color and character. It is shaped like a gigantic H, and the two parallel buildings surround a panoptic atrium space. Towards this central space are a number of corbelled boxes that resembles extracted drawers of various sizes and these transparent 'drawers' contain group and meeting rooms. Common facilities such as lecture halls, café, canteen, and library are located on the ground floor, while research and teaching areas are on the upper floors. The building's transparent appearance is thought to reflect the teaching and research environment and the 'futuristic' feeling of ITU in a way that unites technology, design, and people (Henning Larsens Tegnestue 2005).

Like with Panopticon, a lot of thought have gone into creating the ideal of visibility, but unlike Bentham's utilitarian prison design, the university building does not have a surveillance center; ITU has no inspection tower. However, the principles of discipline characteristic of Panopticon may still apply in an altered formulation. The most important change is, of course, that the surveillance goes both ways, since the observer is also being observed thus making the structure of visibility symmetrical. Yet, the transparency and the 'nakedness' of the observed remain, so even though the university does not have an inspection tower, the building certainly has other features of Panopticism.

## A HAUNTED HOUSE: SPIRITUALIZED AMBIENT INTELLIGENCE

ITU does not have an inspection tower, but it is 'haunted' by spiritualized ambient intelligence, the 'ghosts' of the DELCA Project. The ambition behind DELCA is to combine assistance and entertainment in a way that challenges prevalent opinions and beliefs about virtual agency (Sørensen and Hansen 2004). Instead of servile, neutral and basically 'boring' assistance, this project wants to change the virtual agents into idiosyncratic, 'supernatural' assistants that are simply begging for attention. In this way the idea of virtual assistance is turned upside down, because a number of features appear that at first sight are irrelevant to the assistance, in fact some of them might be outright undesirable. The purpose of this changed approach is to provide a different metaphor for virtual agency that hopefully will take the project further than other similar attempts. Another novel idea that the DELCA Ghost Project introduces is the focus on audio (Hartmann 2004; Folmann 2004). Certainly, this approach escapes numerous difficulties about making visual interfaces convincing, and many technical problems (bandwidth capacity, etc.) is avoided as well. However, audio is not only a defensive strategy against interface demands and technical problems, but also part of the new metaphor for virtual agency.

The ghosts inhabit a narrative universe that students, staff, and visitors of ITU must take part in to benefit from the system. In this way concepts such as 'user', 'interface', and 'technology' are deconstructed, if you like, or at least transformed into a different interactive context with social problems and Darwinist principles. The ghosts have adaptive features in accordance with theories of biomimetic ambient intelligence, and their behavior is thus inspired by complex biological and social systems (Sørensen 2003). Communication is mainly carried out with natural dialogue, since the ghosts are familiar with many everyday words, but other ways of contact are also possible. On request the ghosts can deploy ambient sounds and lights or minimal visualization, and in keeping with the ghost metaphor they can do different 'poltergeist effects', such as creating banging sounds in the wall or make shelves in the library tremble. In practice, the ghosts will combine these different types of communication according to the present situation and the preferences of the people at ITU.

To get an impression of these spooky, faceless interfaces, let us meet some of the ghosts that are going to haunt ITU (Sørensen and Hansen 2004). The Butler is the ghost in chief, and he has all the characteristics of the infamous Victorian butler, well-known from popular culture. He is orderly, precise, and discrete; he has an eye on every finger, knows what goes on in the household, and he has the authority to discipline misbehaving ghosts. The only chink in the butler's armor is his rather un-Victorian passion for soccer. Thin Lizzy is a rather different personality who mainly haunts the canteen. She died young due to poor health, even though she has lived a very healthy and virtuous life in celibacy. Her premature death has made her very bitter, and she takes it out on everybody in sight. Perhaps as a way to compensate for her somewhat dull life, she uses every opportunity to persuade people to eat unhealthy foods, and at parties she is active in coupling students. Another

tragic case amongst the ghosts is Muse, the radio and DJ ghost of ITU. She was raised by her parents to be a wonder child, and her destiny was music. She mastered the piano, but she abandoned life; at age 21 she committed suicide and has actually found her afterlife much livelier. She spreads her love of music, remembering everyone's favorite songs and radio stations. Last but not least, Dolores is the motherly ghost in the building. She is a former waitress from a Texas diner, and she has the accent and the trademark waitress lingo to prove it. Dolores has seen it all, which makes her very tolerant, and she thus provides efficient no-nonsense service, making her a well-liked ghost.

These are a few of the ghosts mentioned in the conceptual framework for DELCA (Sørensen and Hansen 2004), but the ghosts inhabiting ITU are thought to be in constant development according to Darwinist principles. This means that ghosts can be rewarded a promotion, such as more insight into users' demands and upcoming events plus enhanced language capacities, if they are popular with people at ITU, and of course a ghost can be reduced to perhaps a secluded and confined area of the building if it is found unpopular or if it misbehaves. To express the popularity of the ghosts a meter of 'AmbiValence' (short for 'Ambient Valence') has been invented. Ghosts can earn 'ITU's' ('Interest Token Units'), and their number of ITU's is reflected on their AmbiValence meter. Moreover, new ghosts can arrive at the university in accordance with the demands and desires of those who want to take part in the development of the system. In the forum on the DELCA website the ghosts are discussed, and it is possible to suggest new ghosts and speculate on their personality.

The higher AmbiValence, the more favorable possibilities to be noticed at the university, and the social dynamics create a healthy competition between the ghosts to earn the most ITU's. The ghost will try out every way possible – also 'illegal' ways, such as giving students access to restricted areas or confidential information – to raise their level of AmbiValence. This competition ensures active and devoted assistance, and the evolutionary dynamics bears resemblance with reality TV shows such as *Survivor* and, ironically, *Big Brother*. Similar to the dynamics of these shows, the ghosts' fate is determined by pending evaluation, and it is expected that the ghosts will behave unpredictably and give interesting responses.

## SURVEILLANCE, PRIVACY AND TECHNICAL FIXES

The DELCA Ghost Project has been widely noticed since the beginning due to its innovative ideas and wide-ranging themes. Needless to say, it has also drawn attention because of its obvious implications of surveillance and thus privacy issues, though this aspect has so far not been investigated thoroughly. That is not to say that the subject has been absent when the project was conceived; on the contrary, one of the designed ghosts is named HALT after the notorious HAL 9000 from the movie *2001: A Space Odyssey* (1968). Being a resurrection of HAL, the artificial intelligence (AI) of the spaceship Discovery, HALT has never really been alive – at least not in a human sense. As such, he is essentially different from the other ghosts, and this artificial background is noticeable in his personality. However, HALT is an old and pitifully nostalgic ghost – very unlike his alter ego – and his mission in afterlife is to make it back to the silver screen. Like his predecessor, HALT has a very calm voice and, of course, the trademark pulsating red diode, which now can be seen at the entrance to ITU. His job at the university is to monitor everybody entering and leaving the building.

Besides the joke of the ghost HALT, the development team has worked more seriously on the surveillance issue by indicating a number of ways to ensure privacy and other surveillance related problems. It is necessary to deal with this problem because the ghosts survey the entire university, monitoring everybody even though this is done with explicit consent. It is well-known that such systems of voluntary participation easily become involuntary. In the case of the ghosts at ITU, the voluntary participation can become involuntary if the DELCA Ghost Project becomes the *de facto* IT infrastructure of the university; you can choose not to use the system, but in order to benefit from its advantages and over time to fully be able to co-operate with colleagues, it can be necessary to 'give in' to the system[3]. To solve this problem, the ghost system offers some standard means for the protection of privacy such as encryption techniques to hide identities of users in certain contexts, though still revealing the presence of an anonymous Wireless Local Area Network (WLAN) device. Of course, these means of precaution are not enough to ensure the anonymity of users. Moreover, they display a classic reaction to technological problems: the so-called 'technical

[3] A similar example is the use of computers and telephones. It is voluntary to use or not use these devices, but it is difficult to be for instance a Ph.D. student today, if you choose not to use this technology; it is in principle voluntary but in practice an involuntary choice!

fix'. This solution mends problems caused by technology by inventing new technology, assuming that at least most aspects of technology can be controlled by the designer. Information and computer ethics has shown this rather naïve approach to ethical problems in the wake of new technology to be inadequate and sometimes even misleading.

Even though technical fixes in principle seems to be a dead end, many useful improvements can, of course, be achieved this way. Enhanced encryption in combination with a range of other privacy protecting arrangements can contribute to the development of an environment with respect to information security, privacy and trust. However, the technical fixes will never definitively fix the problem, because the logic of this solution is a race between problems and solutions; when a problem is fixed, another problem will appear in the wake of the new technology.

## BIG MOTHER IS WATCHING OVER YOU

It is important continuously to ensure privacy, security and trust as well as possible, but it is in my opinion equally important to raise the question concerning surveillance to a conceptual level in the effort to throw light on the metaphors behind the concerns. The mentioned ethical concerns are closely connected to Panopticon and Big Brother as metaphors of totalitarian control. In the light of these metaphors, any development that increases surveillance and the ability to monitor people is understood as a step in the wrong direction. Therefore, all developments seem to involve a dilemma, namely the choice of development over ethics. In the case of DELCA, the system has obvious advantages, but they are obtained at the price of ethics in the form of higher risk for invasion of privacy, breach of security, and lack of trust in the system.

These ethical problems should not be belittled, but if we focus exclusively on these issues, we might fail to see other aspects of the developments in surveillance. In the book chapter 'Databases as Discourse; or, Electronic Interpellations' (Lyon and Zureik 1996) Marc Poster discusses computerized databases as a phenomenon that in many ways resembles Panopticon. However, Panopticism does not adequately reflect all the features of computerized databases, and it is therefore necessary to transcend the metaphor (or 'discourse' as Poster prefers to word it in accordance with Foucault) of Panopticon. Poster introduces the concept of 'Superpanopticon' as a technologically enhanced realization of Panopticon that encompasses the cultural innovations brought about by databases. In a similar way, I suggest the concept of a 'Postmodern Panopticon' to stress that new conceptual thinking is necessary in the wake of environments of ubiquitous computing. It is a Postmodern Panopticon because it neither represents a "Superpanopticon", that is an enhanced and more effective version of Panopticon, nor does it abandon the idea of Panopticon. I call it postmodern because Panopticism is brought to a new conceptual and technologically constituted environment, where it together with other equally important metaphors forms a new framework for ethical discussion.

Another conceptual approach that in my opinion must be added to Panopticon and Big Brother is the metaphor 'Big Mother'[4]. It is, of course, a wordplay on Big Brother, and it is meant to accentuate the caring aspect of surveillance rather than the controlling aspect. Of course, this side of surveillance is not a new discovery; in fact, it is well-known both academically and in everyday use of the word surveillance. For example when we study the DELCA Ghost Project, different ways of tracking is exposed: The 'good' way, where the ghosts help the person to find something or perhaps to locate a colleague, and the 'bad' way, where the surveillance is used directly or indirectly to monitor for instance irregularities in work patterns, which most people would find uncomfortable and possibly violating. This ambiguousness between 'good' and 'bad' is well-known within surveillance studies (Lyon 2001). Surveillance is always at least two-sided; both for control and care, both Big Brother and Big Mother. The Panopticon metaphor is both incarnated and fundamentally altered by the pervasiveness of the DELCA ghosts. The ghosts seem to undermine the boundaries between public and private, between personal and social borders, and in a broader context they seem to transcend the traditional division of life into work, consumption and privacy.

I believe it is appropriate to think of the DELCA Ghost Project at ITU as a Postmodern Panopticon in the sense that the ghosts and the building have some panoptic characteristics – but not all. The visual transparency is preserved, but it is altered in a way that makes supplementary conceptions to Panopticism necessary. The ghosts add an environment of ubiquitous computing that brings an auditory dimension in addition to the visual, and furthermore it adds a feeling of constant

[4] The Big Mother-metaphor is mentioned at the DELCA website, but it is not explored further. However, the Danish Big Mother website [http://www.bigmother.dk], which is associated with DELCA, is devoted to this conceptual approach.

'presence'. This presence might be artificial, since the ghosts, of course, really are programmed software. Nevertheless, the narrative setting of these virtual assistants contributes to the feeling that the attention of a ghost is never far away. On the other hand, the ghosts can give the user a sense of care and comfortable adjustment, and the awareness of the ever-present ghosts can in that way lead to a feeling of anonymity in the flood of attention, so to speak. In any case, it is necessary to rethink the conceptual level, and I suggest that the range of metaphors should be broadened in order to adequately reflect the DELCA ghosts or, in general, ethical issues concerning surveillance in environments of ubiquitous computing. It can be fruitful to challenge prevalent metaphors for the ethics of surveillance in the same way that the ghosts represent new thinking that challenges the concept of virtual agency.

## CONCLUSION

It can be concluded that it is fruitful to rethink the conceptual framework for ethical issues in the wake of new surveillance technologies and practices. Especially, it seems worthwhile to reconsider the metaphors that frame the ethical debate, since a tendentious preconception such as Panopticon and Big Brother risk turning our attention away from other equally important ethical considerations. The conceptual framework must be balanced, and in the age of ubiquitous computing it seems fruitful also to think of surveillance as a caring environment, rather than a hierarchy of control that continuously threatens to invade one's privacy. The character of technologically supported surveillance, the 'Postmodern Panopticon', which the DELCA ghosts represent, is different from both Benthamite Panopticon and Foucauldian Panopticism. For that reason, other conceptual approaches must be explored in order to adequately reflect the ethical questions concerning surveillance today. In this paper, Big Mother has been introduced as an additional metaphor to Panopticon and Big Brother, and I consider this work preliminary to a broader discussion of technology, surveillance and ethics in the age of ubiquitous computing.

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The author (b.1975) holds a master's degree in philosophy (2003) from the University of Southern Denmark, and since February 2005 employed at Aalborg University as a PhD student. Research interests include philosophy of technology, surveillance studies and computer ethics.