On the Observation of Observation

Media art between the private and public spheres

(Ken Feingold, David Rokeby, Niels Bonde)

I.

The collection and verification of data[1] comprise a variety of contemporary theoretical notions that include a critical examination of the subject of "surveillance" in the media-related, artistic and socio-political context. "Data collection and verification", viewed as an integral part of the history of media art, must be perceived primarily as a cross-disciplinary field. The task involved in treating this subject includes addressing the relationship between the "public/collective" and the "private" spheres and dealing with those problems that are important in terms of media theory and at the same time closely linked to ethnic and political conditions, and relating these problems to media art.[2] There are numerous questions that arise in connection with the problems defined here. First of all, there is the question of "surveillance"[3] and the legality (and illegality) of continually overstepping the hardly definable boundary between the public and private spheres. The consequences of collecting and verifying data on individuals and groups, information which is of a political, psychological and physical nature and which also has relevance to civil law, are the subject of extensive studies that since the 1950s have provided, among other things, concrete facts about the most recent state of affairs. At this point, of course, we can only take a brief glance at the artistic agendas relevant here.[4]

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[1] The expression "data collection" is interpreted here in such a way that there is no strict separation between (analogue) signals and (digital) data: Accordingly "data collection" comprises both the recording of signals and the collection of data.

[2] "Media art" is defined by the author as art using electronic (both analogue and digital) media.

[3] The term "surveillance" is derived from the Latin word *vigilia* and means "vigilance", "to watch over", "wakefulness" and "the fourth part of the night". The French verb *surveiller*, meaning "to observe", "to supervise" and "to check", appears in the title of one of the most-quoted books on the subject, *Surveiller et punir* by Michel Foucault (Paris: Gaillimard, 1975), and shortly thereafter in the English translation it experienced a considerable shift in meaning under the title *Discipline and Punish* (New York: Pantheon, 1977). The "rationalist agenda" of "panoptic" societies, conceived of and analysed by Foucault and symbolised in the model prison of Jeremy Bentham (1748-1832), has since the middle of the 1970s become one of the important targets for numerous (media) artists, stemming from an unerring instinct for the danger to one's own self-awareness and right to exist in a society imbued with the norms of audiovisual representations (Jennifer Riddell, "The Whole World is Watching", in *The Art of Detection: Surveillance*, Cambridge: MIT Visual Arts Center, 1997, p. 3.)

[4] The most important exhibitions on the subject since the middle of the 70s cannot be dealt with here is detail. For more information on this topic, refer to the catalogue *Surveillance. An Exhibition of Video, Photography, Installations*: Los Angeles Contemporary Exhibitions 1987; *The Art of Detection: Surveillance in Society*, Cambridge: MIT Visual Arts Center, 1997; Achim Mohné, *Surveillance Works 1996-2001 "Panopticon"*

The situation in today's "surveillance society" has in this regard not changed significantly since the middle of the 70s: The newly created facts, which we are becoming accustomed to, continue to go hand in hand with the spreading paranoia and the regularly expressed "outrage" at the newly developed fields of media-related data collection and verification in the media initiated by industry and approved of by the political institutions. These fields are already among the achievements of the modern age, and, of course, it is not just since the appearance of the latest visualisation technologies that their logic has transpired beyond the area of the "phenomenal". The "method of observation" found in art, science, religion and politics, and also the imperceptible, "surreptitious" observation referred to as voyeurism have become at the latest since Galileo Galilei (1564-1642) an "official" part of the "rationalist agenda", whose tradition in, for example, art or astronomy goes much further back into the past.

In the field of the electronic media, as early as the beginning of the 20th century radar became the leading type of surveillance technology in the military because of its capability to record, transmit and visually reproduce signals in real time, and soon thereafter it also played a major role in the area of traffic control. Not only the new "display screen" technology and the possibility of storing data, but also the "closed-circuit" (live) transmission of information in particular made radar in most countries an indispensable part of securing their territory. It was precisely the intense use of this media that led Lev Manovich to view this as the beginning of the "modern visual culture"[5]. Although from the perspective of media history it appeared at roughly the same time as did the medium of television, the spread and the cultural impact of this so-called mass medium did not become relevant until later. Observation cameras already began showing up in art galleries at the end of the 60s and the beginning of the 70s, that is, even before they became a permanent fixture of the modern townscape and of contemporary culture as a whole.[6] In 1987 the American artist Brenda

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(exhibition catalogue); *Ludwig Forum für Internationale Kunst (Ludwig Forum for International Art)*, Aachen, 2001; the catalogue *Ctrl Space. Rhetorik der Überwachung von Bentham bis Big Brother (Ctrl Space. Rhetoric of Surveillance from Bentham to Big Brother)*, Karlsruhe: ZKM, 2001; Clive Norris, *The Maximum Surveillance Society: The Rise of CCTV as Social Control*, Oxford, New York: Berg, 1999.

[5] Lev Manovich, *The Language of New Media*, Cambridge, Mass. / London: The MIT Press 2001, p. 99.

[6] Television classics such as "Candid Camera" (since 1948) and of course also film classics like *Rear Window* (1954, Alfred Hitchcock), *Peeping Tom* (1959,Michael Powell), *The Conversation* (1974, Francis Ford Coppola) or *Videodrome* (1982, David Cronenberg), to name just a few, made the general public more deeply aware of the different facets of surveillance, the conditions necessary for it to be conducted and its consequences. On the history of the global system of surveillance, the "Echelon" programme developed by the U.S. National Security Agency (NSA) see Echelon URL

Miller[7] gave an account of this in *Surveillance*, the first major exhibition on the subject, of which she was co-curator and in which she rightly underlined the potential inherent in the artistic preoccupation with "data collection and verification".

The different forms of individual and collective paranoia and not least of all the fundamental questions concerning the motivation for conducting surveillance, such as the need to protect property, were dealt with in the 80s and 90s in retrospective and contemporary exhibitions on the subject. This also took into consideration the new forms of surveillance, which as a result of developments in the media are orientated towards new forms and definitions of ownership, such as the so-called "dataveillance"[8]. The caution called for by various media artists and writers working in the AI and AL fields[9] in dealing with how to interpret the behaviourist and "formally technical" characteristics of human beings and with the grey areas of "human engineering" refer to dealing with the relevant data and the verification of them. Human genetics as well as "neuro and brain monitoring" are additional fields on the research agenda that also preoccupies artists, the same way as are "transhuman" fields such as bionics and evolution engineering (cf. Wilson 2002) and questions dealing with "profiling", a familiar term especially in criminology, which will not be further elaborated on here.

The dynamics of data collection and verification, understood as fields of research in media theory and in art, have intensified with the global spread of the Internet. The Internet-based closed-circuit video installations ("live/streaming" installations) deserve special treatment.[10] The artistic approach to the "Big Brother" phenomenon on the Internet, such as the Webcam installations of Jenny[11] or Andrea Zapp, can be mentioned at this point only as a cross-reference to the related field of research "telecommunications", a special case of transmitting data. The "anti-surveillance products" including maps with installed surveillance systems (http://mediaeater.com/cameras/) and Web links to artists involved in similar activities, action groups and projects (http://www.notbored.org/scp-links.html), of course, also have an artistic background (for example, Bill Beirne, Dieter Froese of New York, Julia Scher, but

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[7] Brenda Miller is the author of the classic work on video surveillance entitled *L.A. Nickel* of 1983; in the same year an even more well-known "video classic" was published, *Der Riese)* by Michael Klier.

[8] This term was coined by the computer scientist Roger Clarke of Australia.

[9] The abbreviations stand for "artificial intelligence" and "artificial life".

[10] The criterion for a closed-circuit video installation such as a "point-to-point" connection as the difference between potentially interactive "closed circuit" and one-way transmissions that exclude interaction in the sense of "open circuit/broadcasting" should not be overlooked, just as the definition of "installation" as *also* a physical entity, which necessarily has to result in the exclusion of artworks that are only located in cyberspace.

[11] Cf. Florian Rötzer, "Offenheit und Privatheit" in *Vision. Ruhr. Kunst Medien Interaktion auf der Zeche Zollern II/IV Dortmund,* Ostfildern: Hatze Cantz Verlag, 2000, p. 192.

also the artists of the first generation such as Michael Snow, Steina and Woody Vasulka, just to name a few).

The variety and breadth of the artistic field of research as well as that dealing with art and media science indicated here is reflected in the large number of applicable visualisation technologies in the form of electronic cameras that range from tiny camera modules, video microscopes and thermal and infrared cameras to the surveillance equipment used by industries. In the area of data collection and verification, closed-circuit video installations have been conceived for intervening in the public sphere/institutions as works designed for a specific place or time. Moreover, they focus on the surveillance models ("panopticon" models), on the recording of "time traces" and the exploitation of the behaviour of human beings or animals or else on hidden surveillance in the form of "capture installations".[12] In a broader view the so-called "faked" closed-circuit video installations can also be cited here, those that only pretend to be close-circuit videos in order to achieve a specific psychological effect on the part of the viewers.

II.

The following observations and reflections on "interactive" media art are focused on three important artists whose work is to be presented at the EMAF exhibition this year: Ken Feingold, David Rokeby and Niels Bonde.

Since 1970 **Ken Feingold** (b. 1952) has made a great number of 16mm films, film installations, videotapes and computer-aided installations. Feingold is an important representative of the second generation of media artists, and his work is a splendid example of the continual cross-media development of film and video and includes digital forms of expression. In this regard a parallel can be drawn to his counterparts of the first generation, Steina and Woody Vasulka as well as Nam June Paik. Feingold's interest in the possibilities of representing the self and others in the media by means of non-linear narrative strategies was reflected earlier in semiotic and psychoanalytic theories, inspired not least of all also in examples from art history such as Duchamp and surrealism, Jasper Johns, but also in audio-visualisation devices from the early twentieth century. Influences from eastern Asia, gathered during his extensive trips there, also mark Feingold's conception of himself and his art. Together with David Rokeby in Canada, Toshio Iwai and Masaki Fujihata in Japan, Bill Spinhoven in the Netherlands and Jim Campbell in the US, Feingold represents a generation of media artists who at the end of the 80s and the beginning of the 90s contributed considerably towards helping media art to gain acceptance internationally. Through their

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[12] For example, Bill Viola, Michel Jaffrenou, David Hall, Wong Al, Christin Lahr, *Human Control,* Werner Klotz, Marikke Heinz Hoeck, Maria Virkkala, etc.

independent development of hardware and software components in connection with visual interfaces—live video cameras—the artists succeeded with their solutions for closed-circuit video installations in getting the advantages and inherent features of real-time, feedback-capable analogue and digital media to interpenetrate. The transition from analogue "video art" to digital "media art" was thus completed, and together with this the "wave of interaction" in the media art of the 90s had been ushered in.

As a result of further developing his art on both a formally technical and technological basis, in the 90s Ken Feingold's outwardly "hermetic" closed-circuit video and audio installations, which were inspired by psychoanalysis, went through a surprising "change" externally—although not a paradigmatic shift, and this manifested itself primarily in his computer-aided robot installations. In his computer-aided closed-circuit video installation entitled *Where I can see my house from here so we are* (1993-94) Feingold combined for the first time his conception of interaction with the "streaming" video technology and applied it to the highly ambivalent metaphor of ventriloquist dummies, whose appearance in the form of mobile robots seems to act as a mediator between the "internal" and the "external", both in the psychological sense as well as in the duality of "technology" and "biology".[13]

In his lecture "The Interactive Art Gambit" ("Do not run! We are your friends!") of 7 April 1997 at the Museum of Modern Art in New York City, Ken Feingold put forward several interesting theories concerning the cultural and historical significance and scope of digital systems for interaction: In his view, video games, simulators and similar commercial and military applications are often interpreted in a monocausal way as the only predecessors of "interactive" media art, which actually only affects the technological aspect of the total problem complex surrounding "interactivity". According to Feingold at this point the context of art must be taken into consideration much more strongly, and he presents several examples from the early twentieth century up to the 70s that not least of all incorporate the psychological side of the problem (Duchamp, the surrealists, Jasper Johns); even examples

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[13] The installation of a room with mirrors was set in a darkened room. This consisted of three honeycomb-shaped elements put together and each one with a hexagonal outline. They were open at the top, and all the interior walls of the room, which was put together along an open edge of each of these three parts, were completely covered with a surface of mirrors. Three robot dummies were moving around inside, each bearing a mask-like head above a functional, rollable pedestal. One eye of each of the robots was the lens of a camera installed in the head module; the sections of the dummies' mouths were also moveable. The walls of the room were high enough so that the robot-cameras could not look over them, but allowed visitors to view the scene from above. The visitors, who controlled the operation of one of the robots, could move it around in its cage and have it communicate with the other robots or with its mirror image reflected in one of the mirrored walls. In another variation the robots were connected to the Internet, by means of which visitors could receive pictures and sound.

taken from experimental cinema and the early "video art" of the 60s and 70s are used by this American artist to determine precisely his own position:

The majority consensus would show that most media, if not all media, except for some artists uses, are conceived of as within the affirmative culture: as Cornwell says: "corporate, military, consumer, and pedagogical sectors". And the mainstream audience, trained on cash-dispensing computers and information kiosks, wishes to affirm the qualities Cornwell says are valued in mass culture forms of interactive media: Efficiency, simplicity, logic, clarity. That essential negativity, this rebellion or break Kristeva discussed, is no longer at work in a world where we talk or care about "users", where we measure "hits" on our Web sites, where we want our so-called "interfaces" to be "friendly" or "intuitive", efficient, simple, logical, clear. When works strive to be completely understandable, they cannot produce any sort of break, and cannot create any new meanings. And the effect—that it is easy to forget that even those media forms which appear efficient, simple, logical, and clear are expressions, constructions, ideologies which reinforce known structures of economics, power, and agency.[14]

As a consequence of this and also in view of his own position as an artist, Ken Feingold voices his unambiguous opposition towards the supposed interactive forms of media art that we have become familiar with in science museums and similar contexts:

[...] much of what is called "interactive art" or techno-art borrows or derives from this science museum demo-aesthetic. Push a button, something happens. Put in the money, out comes the candy bar [...] also, I wanted to be quite clear that I was not offering people "choices", "menus", or any of the other fare well known at that time from commercial kiosk applications and training videodiscs. (ibid)

In the same context Feingold mentioned an important point in his view of art and in his conception of interactivity in media art when he announced his departure from the possibilities of "control" and goal orientation in this process. There is apparently a big contradiction here with regard to the definition that Norbert Wiener gave to the term "cybernetics" in the 1940s, in which control constitutes the decisive element. At the same time Feingold does not depart from the digital computers structured accordingly and the technologies based on them. On the contrary, he puts forward a notion which includes the cybernetic, biological and psychological "control circuits", thus describing the possibilities of an "open", unpredictable interaction in the context of media art:

Interacting with an unpredictable artwork is something far more unknown than interacting with a well-oiled functional machine. While the computer-driven work is not truly unpredictable, in fact, mathematically, it is the opposite—the subjective experience of it is

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[14] Ken Feingold, "The Interactive Gambit" ("Do not run! We are your friends!") Technology in the 90s presentation, New York: The Museum of Modern Art, 1997.

that it is unpredictable, complicated, mysterious [...] Using computers to control works is not simply a more advanced form of what has come before. (ibid)

The computer-aided closed-circuit video installation *Where I can see my house from here so we are*, presented in the historical part of this examination, was used by Feingold as an example of the potential "rebellion of machines", which place themselves outside of strict control. This can be viewed as the reverse side of the "rebellion" of reception aesthetics against the artist, one which acknowledges the authority of the "implicit" as well as the "explicit" observer in the work, thus increasing considerably the demands on the competence of media artists as well as their audience in a way that is also up-to-date and context-related and not only hermeneutical. To cite Feingold again:

The complexity in these works provides the path upon which a participant can find these inner qualifications, in a dialog between the work and their own subjectivity. Art is a social form of the imagination [...] The goal is to get beyond the vending-machine menu-driven forms of interaction. The efficient, simple, logical, clear work—"if viewer does this then computer does that"—is too fixed, and as a result lacks mystery, complexity, or paradox, which I consider to be essential qualities of a good work of art. (ibid).

The integration of video feedback in computer-assisted installations, in the sense of an instable flow of signals that only can be controlled with great difficulty, must be pointed out as a particular feature in connection with the work of **David Rokeby.** The reason is that this is not just a reference to the historical significance of early "analogue" close-circuit video installations, but it is also evidence of artistic notions of interaction advanced in media art during the last years of the twentieth century.

If a language cannot be reduced to logic and logic cannot be reduced to arithmetic,[15] then instable forms of interaction, such as those called for by media artists like Simon Penny, Ken Rinaldo, Seiko Mikami, Horst Prehn and others, must be viewed as a highly promising direction of development in media art in the coming years.

The fixation on *visible* interfaces and the *visual* presentation found in standard solutions are abandoned in numerous artistic media installations, including those presented here, in favour of *invisible* interfaces and the *non-visual* presentation. The VN System *(Very Nervous System)* by David Rokeby from the 1980s, which has now become a "classic", can also be cited here as a good example: a computer-aided closed-circuit video installation with *invisible visual* interfaces/inputs (live video cameras) and mostly just audible output

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[15] Cf. Gottlob Frege (1994) and individually selected letters written by Frege (1980); *Begriffschrift und andere Aufsätze,* 1964, (1st edition Halle, 1879), as well as *Die Grundlagen der Arithmetik,* Hamburg: Felix Meiner Verlag GmbH, 1988.

(computer-generated sound), which in the 90s was followed by dozens of media installations with comparable "natural" or rather "intuitive" interfaces (mostly hidden live video cameras). David Rokeby (b. 1960) is one of the pioneers of computer-assisted interactive media art. His artistic position exemplifies the investigation into open, interactive systems with the aid of closed cycles: The closed-circuit video installations developed by Rokeby in the 80s also became the best examples of the theoretical starting points of and the conclusions drawn by the Canadian artist:

Interactive systems invariably involve feedback loops. The limited representation of the user is inevitably reflected back to the user, modifying their own sense of self within the simulation [...] Interactive systems inherently involve feedback. The system responds to your actions, and you respond based on its responses and your desires. In *Very Nervous System*, I constructed tight real-time feedback loops with complex behaviours which illustrated several interesting characteristics of interactive feedback.[16]

Unlike the stabilising and balancing negative feedback systems, which as a rule are suited to and used for controlling and maintaining the status quo, *Very Nervous System*, the closed-circuit video installation conceived by Rokeby, is a classic example of positive feedback,[17] within which the "output(s)", the audiovisual effects, can develop their full potential only by increasing the "inputs". In order to "cut" these technological possibilities to the scale of human dimensions and—to put it better—to develop them out of the scale of human dimensions, Rokeby especially focused his attention on interface solutions in the scope of his cybernetic model and the conception of his art.

In the spring of 1986 Rokeby developed the third generation of his interactive installations from the previous one, and in the same year he exhibited the first version of it under the title *Very Nervous System* in the exhibition "Arte, Technologia e Informatica" at the Biennale in Venice.[18] The work was installed not only in conventional exhibition halls but also outdoors in public areas. It was used as well in the framework of several performances and is variable with regard to the number of components and the arrangement of them.[19] Over the years

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[16] Rokeby. In Martina Leeker (ed.), *Maschinen, Medien, Performances. Theater an der Schnittstelle zu digitalen Welten,* Berlin: Alexander Verlag, 2001, pp. 64, 70.

[17] This is actually a combination, which will be emphasised below in a quotation by the artist.

[18] In 1988 the installation was still entitled *Body Language* (Dunlop Gallery, Regina, Canada).

[19] The basic principle appears here as follows: Anywhere from one to three closed-circuit video cameras record images of the room, and a system of processors made by the artist digitises the images produced by the cameras. A computer gathers information from these data on the movements in the room by means of software written by the artist, which can calculate and extrapolate the people, locations and movement vectors and determine the locations with the greatest activity. This information is used to control a synthesiser, whereby the volume and tone of the sound coming from two loudspeakers is related to the movement of the visitors.

Very Nervous System has undergone some technical modifications,[20] which to a certain extent can also be regarded as the products of a continuous "interactivity test" initiated by the artist: With his attention artistically focused on the possibilities and limitations of interaction and on its psychological effects and those of society as a whole, Rokeby developed and discarded numerous interface solutions that are considered to be exemplary for media art today.[21]

His specific, practical-analytical approach, also exemplified in the variability and flexibility of *Very Nervous System*, was summarised by the artist in the following way:

Because the computer is purely logical, the language of interaction should strive to be intuitive. Because the computer removes you from your body, the body should be strongly engaged. Because the computer's activity takes place on the tiny playing fields of integrated circuits, the encounter with the computer should take place in human-scaled physical space. Because the computer is objective and disinterested, the experience should be intimate.

And he continues by saying:

The language of this encounter is initially unclear, but it evolves as one explores and experiences. The installation is a complex but quick feedback loop. The feedback is not simply "negative" or "positive", inhibitory or reinforcing; the loop is subject to constant transformation as the elements, human and computer, change in response to each other. The two interpenetrate until the notion of control is lost and the relationship becomes one of encounter and conscious involvement.

The exemplary development of computer-assisted and at the same time open interaction systems from the possibilities offered by audiovisual closed-circuit feedback loops is clearly expressed in the quotation cited above and for this reason deserves special attention.

During the 90s Rokeby developed his new/old themes and technological solutions resolutely and "organically" from his earlier artistic work and his own theory of art: This is related to questions concerning technological interaction and in equal measure to societal contexts, and

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[20] Since the end of 1988 Rokeby has been using the specially developed "IntAct" software, and since 1989 an enhanced image processor ("Rokebytizer") for an even more complex image analysis. Cf. Dinkla, 1992, p. 78.

[21] His approach, which is orientated towards the analysis of the practical situation, can be shown using his participation in the Siggraph Art Show in 1988 as an example:

Many attendees entered my installation to "test" it using what I've come to call the "First Test of Interactivity". The test involves determining whether the system will consistently respond identically to identical movements. (Note that an intelligent agent will probably fail this test.) They would enter the space, let the sounds created by their entrance fade to silence, and then make a gesture. The gesture was an experiment, a question to the space; "What sound will you make?". The resulting sound was noted. Second and third gestures were made with the same motivation, and the same sound was produced. After the third repetition, the interactor decided that the

by the middle of the 90s at the latest this became discernible. Retaining the necessary balance and interpenetration between the human "open system" and the technological "closed circuit" will thus remain the successful artistic strategy of David Rokeby also in the future. It first manifested itself in the closed-circuit video installations, which can be viewed as variations and new elaborations of *Very Nervous System*. In the EMAF performance of *Very Nervous System – (Perception is) The Master of Space* (1990) in Osnabrück, Rokeby returned once again to the video output form and used an additional computer monitor, while in *Measure* (1992) the time component and the audio system became the centre of focus. In his work, and especially in the closed-circuit video installation entitled *Watch* of 1995, David Rokeby tied together the strategy of destabilising the individual's perceptive system with the society-relevant questions of surveillance and control.

Various aspects of the concept of "interaction" in the context of media art cannot be discussed in more detail within the framework of this text; the artists discussed above exhibit a particular relevance with regard to the treatment of questions concerning interaction in media art. Their relationship to both the cybernetic as well as the biological control circuits makes them in terms of content and methodology trustworthy intermediaries between the confrontational approaches and positions of critics and supporters of the "digital" or rather the "analogue" direction in media art.

With his closed-circuit video installation *Very Nervous System* and his theoretical writings on interaction, David Rokeby fulfils the qualifications for being referred to as a key figure in the area. His criticism of the way in which we relate to simulation technologies continues to be rather harsh:

But we're spending more and more time amongst our simulations, and we're in danger of losing sight of the fact that our models and ideas of "reality" are drastically simplified representations. If we do lose this awareness, then our experience of being will be significantly diminished. Simulations offer us formerly unimaginable experiences, but the foundations of these simulations are built up from a relatively narrow set of assumptions about the structure and parameters of experience [...][22]

The "simulated complexity" of such "closed systems" (ibid), including, for example, pseudo random generators, is not capable of generating anything really new, accidental or unforeseeable. The entertainment, infotainment, edutainment systems and other similar ones functioned beyond the interface-content congruence, and as such they lay no claim to the adjective "interactive" in the sense described by Rokeby. In this regard the Canadian artist explicitly had an "interaction component", namely "responsibility", which was

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system was indeed interactive, at which point they changed the way they held their body and made a gesture to the space, a sort of command: "Make that sound" (Rokeby URL)

[22] David Rokeby, "The Construction of Experience: Interface as Content" in *Digital Illusion: Entertaining the Future with High Technology*, Clark Dodsworth, Jr., contributing editor, 1998.

understood as an irresolvable, conscious ambivalence and tension between "freedom" and "control":

[...] accepting responsibility is at the heart of interactivity. Responsibility means, literally, the ability to respond. An interaction is only possible when two or more people or systems agree to be sensitive and responsive to each other. The process of designing an interaction should also itself be interactive. We design interfaces, pay close attention to the user's responses and make modifications as a result of our observations. But we need to expand the terms of this interactive feedback loop from simply measuring functionality and effectiveness, to include an awareness of the impressions an interaction leaves on the user and the ways these impressions change the user's experience of the world (ibid).

In David Rokeby's interpretation all interactive systems contain feedback loops; open interactive systems, however, have no stabilising function (negative feedback). On the contrary, with their built-in positive feedback they must be viewed as structurally unpredictable both in their behaviour as well as in the result, whereby the "result" must not be compared with a "end" but rather with one of the great many different intermediate stops. Rokeby's *Very Nervous System* is an early practical manifesto of this perception, which appears historically at the transition from analogue to digitally assisted media art and which confirms in every respect the notion of continuity in (media) art supported by the author of this text.

Moreover, *Very Nervous System* demonstrates "closed-circuit" as an "open system" and defines "interaction" as a end concept that (beyond the preconceived, algorithmic or other kinds of designations) can only be aimed at and experienced step by step and in the context of *proxemics.*

In the course of the second half of the 90s the critical examination of the manifestations and causes of the surveillance paranoia reached one of its preliminary climaxes with the closed-circuit video installations of the Danish artist **Niels Bonde** (b. 1961). In a statement he made in 1996, Bonde pointed to some of the immediate sources that inspired him—the "clinical cases" of paranoia and conspiracy theories that "surfaced" again and again and that became visible to him, but also to his own reflections on the historical and biological "motives" surrounding these cases:

Paranoia, in some respects, I think, is a modern-day development of an ancient, archaic sense that animals still have—quarry-type animals—that they're being watched. [...] I say paranoia in an atavistic sense. It's a lingering sense that we had long ago, when we were—our ancestors were—very vulnerable to predators, and this sense tells them they're being watched. And

they're being watched probably by something that's going to get them. [...] And often my characters have this feeling. Philip K Dick.[23]

Bonde's close-circuit video installation *I never had hair on my body or head* (1995)[24] effected a paranoiac vision in which the seemingly peaceful surroundings of an "archetypical home" is a furnished apartment filled with teddy bears, indoor plants and a cradle among other things, and in each of the objects mentioned a potential instrument for carrying out surveillance might be hidden: There are live video cameras actually hidden there, and the visitor can assure himself of this by looking at the surveillance monitors and also viewing himself from the perspective of a teddy bear. In addition, the individual elements of this environment play the role of "message bearers", such as "Ole is sending messages over the radio" (1995)—a potted cactus placed on a rostrum with a live video camera module installed in it is taking live pictures of the surroundings; or "I can drink 10 beers without getting drunk" (1997)—an ensemble consisting of a refrigerator, food and cameras; or also "They control me through the TV set (live version)" (1997)—tennis shoes containing a radio transmitter and other devices. Here the ambivalence of the rejection and seduction of being seen is at work, in an environment in which the act of seeing can be interpreted as ambivalent, not only as a control level of the insider but also as the condition of being an outsider and the non-participation of curious onlookers and those with a desire for the sensational. In this connection Jennifer Riddell has posed the rhetorical question: "Have we begun to fear that perhaps no one is watching at all?" (J. Riddell, 1997)

Bonde's intimations and unmitigated dilemmas of among other things a political, ethical and technological nature (in 1998 he created a more general metaphor with his closed-circuit video installation *An interactive tragedy*) found expression in concentrated form in his "surveillance works", and among these especially in his closed-circuit installations. The reciprocity of observing and being observed as a possible mirror of the relationship between power and seduction, taking control and resource, continues to be among the urgent questions of the present day. In the last few years Bonde's interest in data collection and verification has expanded in his *Flowcharts & Diagrams*, installations and Web projects that analyse the parallelism of streams of information in thoughts and in data processing with the goal of, among other things, interpreting the conditions and resources of the Internet. The psychoanalytical and power-political driving force, motives behind and effects of surveillance

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[23] Niels Bonde. Statement in Jennifer Riddell, "The Whole World Is Watching" in *The Art of Detection: Surveillance in Society*. Cambridge: MIT Visual Arts Center, 1997.

[24] Bonde on the title of his work: "'I never had hair on my body or head' The statement is excerpted from a test administered by Nordvang, a psychiatric hospital in the suburbs of Copenhagen. The patient has to answer 'yes' or 'no' [...] This allows the doctors to make a simple assessment of the type of patient they are dealing with [...] I know about the test because there was a time when nearly all my friends were more or less (mentally) disturbed and half of them were in psychiatric hospitals." (Bonde, 1997, p. 27)

on the individual and collective perceptions and conceptions of the self extend in both a horizontal-global as well as in a vertical-historical direction through the consciousness and subconscious of human beings, additionally reflecting the division between the new and the old in the development of the media. Just as with Ken Feingold and David Rokeby, the art of Niels Bonde develops from this relationship of tension in which "transmission" and "interaction"—in the best tradition of media art—can be reduced to a common denominator.