Obsolete Equipment Research Project

Nederlands Instituut voor Mediakunst

I/Eye (1993/ 2011)

Bill Spinhoven

Case Study Report, Obsolete Equipment Research Project

Netherlands Media Art Institute

2011

INDEX

1. INTRODUCTION

This case study describes the technical and ethical concerns raised by the re-installation and the future preservation of computer-based interactive installation *I/Eye* (1993/2011) of the Dutch artist Bill Spinhoven Van Oosten. This study is part of the collaborative research project supported jointly by the Platform for the Archiving and Preservation of Audiovisual Arts (PACKED, Brussels, Belgium) and the Netherlands Media Art Institute (NIMk, Amsterdam, The Netherlands)[1], *Obsolete Equipment: the preservation of playback and display equipment for audiovisual art*. The project *Obsolete Equipment* brings together a number of case studies from NIMk, M HKA (Museum van Hedendaagse Kunst, Antwerp, Belgium), S.M.A.K. (Stedelijk Museum voor Actuele Kunst, Ghent, Belgium), Kröller-Müller Museum (Otterlo, The Netherlands), Stedelijk Museum Amsterdam, and Netherlands Cultural Heritage Agency (RCE, Amsterdam). The research about *I/Eye* is included in this project's second phase, which is dedicated to computer-based art and it is aimed to propose, explore and consequently set theoretical and practical framework for the distribution, presentation, management and long-term conservation of electronic and digital artworks[2].

This case study is divided and presented in three different documents:

1) a case study report concerning the formal and technical descriptions as well as the meaning and historical context of *I/Eye* (1993), specifically the version that is been distributed by NIMk[3];

2) a research into the virtualisation as a preservation strategy for computer-based artworks[4];

3) a document about the artist's participation, which holds interviews with Bill Spinhoven, and also a document about the artist's participation, which holds interviews with Bill Spinhoven, and also the artist's report about the emulator building for this case study.

The next report is the first document concerning this case study, and it is aimed to identify the key technical, historical and aesthetical aspects of *I/Eye* (1993) that must be preserved in order to maintain its fidelity/ integrity[5]. This case study includes comprehensive and detailed documentation about the behaviour, the meaning and the technology used in producing *I/Eye* (1993)[6]. In order to trace the 'institutional life' of *I/Eye* (1993/2011) within NIMk this research brings together a wide range of information[7]; it addresses critically diverse sources of documentation ranging from the NIMk's archival collections, Spinhoven's personal archive to online sources.

The re-installation of *I/Eye* (1993/2011) implies a balance between the formal technical principle of the software-based artwork and its core concept versus the functionality of its components. Re-staging the artwork involves a number of practical questions concerning the obsolescence and (in)availability of the operating system and the display equipment, as well as, the (in)operability and correct functionality of the software[8]. Furthermore, to re-stage *I/Eye* (1993) involves a deep understanding into the relationship between its software and its specific hardware configuration. As any others unstable media artworks[9], a profound research into the relation between its technical equipment and *I/Eye*'s meaning, must be fundamental in the conservation decision-making process[10].

Produced in 1992 and exhibited for the first time in 1993, *I/Eye* has been exhibited in many venues, it has been installed in different ways, and even, the artist has modified it in order to keep it up and running[11]. Spinhoven states that *I/Eye* is a non-static object, the artwork should be understood as a process, and therefore, it inevitably must change and transform[12]. Furthermore, *I/Eye*, and also the artist have a strong connection to NIMk once the installation's production history can be traced back to the late 1980s, when Spinhoven worked there as a video editor [13]. There, having the technical means, Spinhoven was able to

develop the artwork's concept (see 4.1. - Production History of I/Eye (1993))[14]. Due to the artwork's relevance within NIMk, its significance to the Dutch media art history[15], and also due to the installation's highly complex conservation issues the Head of the Preservation Department, Gaby Wijers, and Bill Spinhoven have agreed to carry on an extensive research aiming at ensuring the future distribution and display of this installation. Furthermore, it is hoped that this case study's results can contribute to the collections' computer-based art artefacts preservation and even to other media art collections in the world.

Descriptors: Hanna Hölling and Jo Ana Morfin
Identification of the descriptors: conservators M.A. of Contemporary Art /PhD researchers Jo Ana Morfin (University of Bristol) and Hanna Barbara Hölling (University of Amsterdam).
Date of the description: 01-09-2010 / 01-09-2011
Coordination: Gaby Wijers/ Researchers: Hanna Barbara Hölling and Bill Spinhoven
Editing: Ana Ribeiro

2. IDENTIFICATION AND DESCRIPTION OF THE WORK OF ART

2.1 - Identification Table of *I/Eye*

Institution name:	Nederlands Instituut voor Mediakunst (NIMk)
Artist:	Spinhoven, Bill
Title:	*I/Eye*
Dutch title:	Ik/ Oog
Parallel title/ subtitle:	No applicable
Status:	Distribution
Behaviour (Description):	Software-based installation
Number of versions:	1 version
Number of editions:	4 in total and just 2 related with NIMk
Year of production:	1992
Acquired / distribution rights from:	Bill Spinhoven (the artist)
Acquisition contract/ purchase date:	06-December-1993 and 11-July-1994
Distribution contract date:	13-January-1997[16]
Value:	38,000fl (17,243.64EUR, excl. 17.5% BTW)
Certificates:	Purchase contract (first edition): Dec 12th, 1993. Production payment certificate (second edition): July 11th, 1994. Distribution contract number: 045 January 13th, 1997.
Labels:	No
Dimensions:	Variable[17] (site specific)
Weight:	Variable[18]
Colour/ specification:	Black and white
Sound:	No
Duration	Runs continuously
Keywords:	Software-based, interactive installation, surveillance, watching, close circuit installation.
List of components (see Table 1: List of components *I/Eye* (1993)[19]:	1 Sony monitor PVM 2130; 1 Software (Acorn Archimedes); 1 Archimedes computer (plus the keyboard and the mouse); 1 camera plus lens; cables and other display elements: black metal pedestal and black metal leg, which holds the camera.

2.2 - Brief description of *I/Eye* (1993/ 2011)

Figure 1: *I/Eye* (1993/ 2011), software-based installation by Bill Spinhoven. Installation view.

I/Eye (1993/2011) is a software-driven installation (figure 1) in which the involvement of the viewer is essential. The artwork consists in a video-monitor, a camera and a computer, which holds the software.

A video monitor shows a giant and watchful human eye. The eye, that actually is the artist's own eye, is a black and white image that fills the entire screen. Until the viewers' movements trigger the eye, it remains still. As soon as the passer-by approaches the installation, the gaze follows every of the viewer's movements, consequently "the observer becomes the observed"[20].

2.3 - The meaning of *I/Eye* (1993/ 2011)

From distance, the viewer sees on the monitor a black and white image of an eye. Initially he/ she thinks that is the observer, but when approaching or passing in front of the installation, the eye follows all the viewer's movements and stares at him/her. Consequently, the observer realises that is the one who is being scrutinised and watched by the eye. Their movements are tracked in real time and with remarkable precision by the image of the artist's eye.

According with the words of the art historian and critic Jorinde Seijdel,[21] the encounter with *I/Eye* provokes an overwhelming and unnerving experience on the viewers as "it challenges their own secure position as observers".[22] When the viewer find him/ herself being observed and followed by the artist's eye, the viewers realise that they are in unusual and awkward situation, instead of being the observers, they are actually being observed by the installation[23].

Seijdel affirms that *I/Eye* makes people aware that every day they are constantly being monitored and observed by others: "the Big Brother is watching you"[24]. The curator Hans-Gerd Kaspers,[25] suggest that *I/Eye* highlights "the phenomenon of society's heightened need for security, as well as the loss of privacy this need automatically entails"[26]. However, "the most important aspect of this work, as far as the artist concerns, consists of giving the audience the chance to watch other people discovering the eye"[27].

3. TECHNICAL INFORMATION

3.1 - Technical description *I/Eye* (1993)

Bill Spinhoven's interactive installation's system consists in a monitor, a camera and a software code stored in the computer's hard disc. The installation depends completely on the software. The monitor's screen is filled out with the image of the eye. The surveillance close-circuit camera is positioned above the monitor and it is connected to the computer, which holds the software.
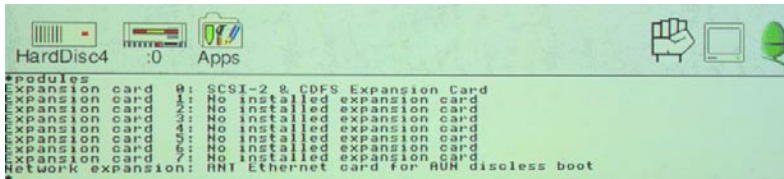
Figure 2: The software written in BASIC V Assembler language.

Figure 3: Acorn RISC OS operating system desktop.

The eye remains still until the viewer's movements trigger it. When the passers-by enter within the range of the surveillance camera's registration area, the camera detects their movements and sends the information to the computer. Through software processing the computer recognizes the sense of displacement, thus causing an output image that gives the impression that the eye can follow the passers-by. In fact, not all of the eye that follows the viewer, only the iris moving image which is embedded on the white of the eye. The artist's gaze follows the viewer's movements in real time and as long as they are within range of the camera.

The artist wrote the software using BASIC V Assembler language (figure 2), which works on Acorn Archimedes Operating's systems and RISC OS (figure 3).
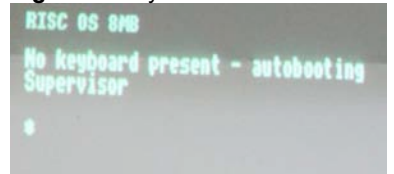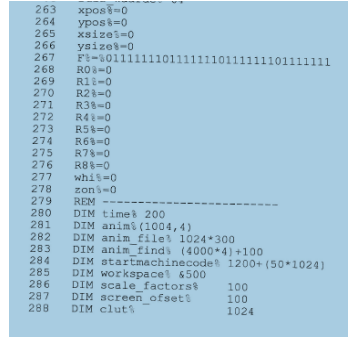

Figure 4: Computer Acorn RISC PC 600.

He stores the software in a RISC PC 600[28] (figure 4). Some modules have been added to the hardware; this implies that the 'original' performance of the computer has been modified. Generally speaking, the computer's performance enhances and the processing becomes faster. Therefore, the behaviour and functionality of *I/Eye* has a strong relationship with the specific computer architecture.

I/ Eye uses four photos of the artists' eye. With two photographs the pupil image has been replaced by whites and a photograph of a pupil. Two of these images have a mask, which indicates the place where the pupil may be seen. Also there is a picture of a pupil. The picture shows several stages of the eye, from open to close. The program creates an eye with pupil on the basis of motion detection and pre-programmed behavior. If, for some seconds, there no motion, the eye will continue to "look", but if, for a while, there is no movement at all the eye will close completely. The closed eye suggests it is sleeping. Meanwhile, all the pictures move slowly up and down suggesting breathing. Furthermore, the artist had to mask the slow speed of the original computer - it was about 8 frames per second for the Acorn 410 – and chose to use motion blur. Thus, a mix of a new and a previous image will make each brand new image. Finally, the camera image is shown very lightly on the photograph of the pupil, which gives the illusion of the space reflection on the shining eye. To simulate the blinking of the eye a data file that is used 25 times per second indicates that the eye must be open or closed. The flashing sequences differ and are repeated.

3.2 - List of components *I/Eye* (1993)

Table 1: List of components *I/Eye* (1993)

Computer

Computer: Acorn RISC PC 600 (figure 5)
Operating System: RISC OS (figure 7)
CPU: ARM
Memory: 8MB*

Observations: Some modules have been added to the hardware computer in order to speed it up and to improve its performance (the expansion slots: backplane, graphic card and memory card). The keyboard and the mouse must be included with the computer (figure 6).

In case of replacement/ obsolescence: the intention of the artist is to rebuild the work reproducing the original way in, which the installation worked on a modern PC. Recently, Spinhoven has proposed a "total reconstruction on the basis of standardized modules inside a virtual environment"[29].

Figure 5: Computer Acorn RISC PC 600.

Figure 6: Keybord and mouse.

Figure 7: Operating System: RISC OS

Monitor

Sony Cube Monitor PVM (2130) (figure 8)

Observations: with a special H + V-size; screen size: 51"

In case of replacement/ obsolescence: A cube monitor.

Figure 8: Sony Cube Monitor PVM (2130)

Camera

Monacor surveillance video camera[30] (figure 9)

Type TVCCD-2000 CCD plus LENS.

Observations: The camera requires special lens: eye-fish lens to have a wider registration area and auto iris lens to control de amount of light. Up to now, the lenses have been attached to the camera with tape.

In case of replacement/ obsolescence: There are not specific requirements for the camera (it could be a web-cam or fire-wire camera) but it should have a show driver to be connected to the software.

Figure 9: Monacor surveillance video camera and fisheye lens.

Software

Language (programming): BASIC V Assembler[31] (figure10).
Instructions and notes: English
Platform/ System's requirements: Acorn Archimedes / Acorn Risc OS
Programmer: The software was developed by the Bill Spinhoven .
Location: in the artist's possession
Observations: the computer must be switched on 24 hours a day as the duration of the programme is running continuously.
In case of replacement/ obsolescence: See footnote 34.

Figure 10: software.

Extras

Cables: monitor cable, electricity cable.

3.3 - Installation/ Presentation

The next report's sections are dedicated to *I/Eye* presentation details regarding general guidelines and steps for the artwork's re-installation (see general guidelines and table 2) and also insights into the virtualization procedure (see 3.4 - Equipment specifications and Technical description (version 2011)).

When re-installing very complex artworks such as *I/Eye,* one must have in mind that these procedures must involve a deep understanding into the software's and hardware's specifications as well as into their relationship. Inevitable changes forced by obsolescence phenomena, in these cases, call for a reflective research into the relation between the installation's technical features and their meaning in relation to the artwork's concept, aesthetics and historicity[32].

3.3.1 - Installation and Display Instructions

General guidelines for display

Ideally, the installation must be displayed in a place with a natural flow of people walking by. It shouldn't be set in a place where there are too many people walking by. Otherwise, the eye may not be able to follow the audience. *I/Eye* should be positioned within the space in a manner that people passing by can see it; preferably the audience should run parallel to it not in front of it nor straight up to it, because the reaction of the eye (diagram 1).

I/Eye cannot be shown in a room or in dark places because the camera requires light to register the audience's movements properly. Therefore a space with natural light is strongly recommended; spotlights directly on the screen should be avoided because of the mirroring of the images (diagram 1).

The monitor should be placed over a pedestal at eye level against a wall (diagram 2). On the top of the monitor there is a black metal leg (figure 15) that holds inside the camera and lens. The monitor and camera are discretely connected to the hidden computer, which holds the software. There must be at least two meters away from the public and the artwork. Otherwise, the camera cannot record (diagram 1).

Additional comments: This particular version of *I/Eye* (1993) should be displayed on a monitor. However, the artist has mentioned that the colour version (2005) can be presented today in three main ways: One tube monitor/ multiple tube monitors; one projection/ multiple projections and LCD screen/ multiple screens. The projector should be 2000 lumens, 1024- 786 resolution.
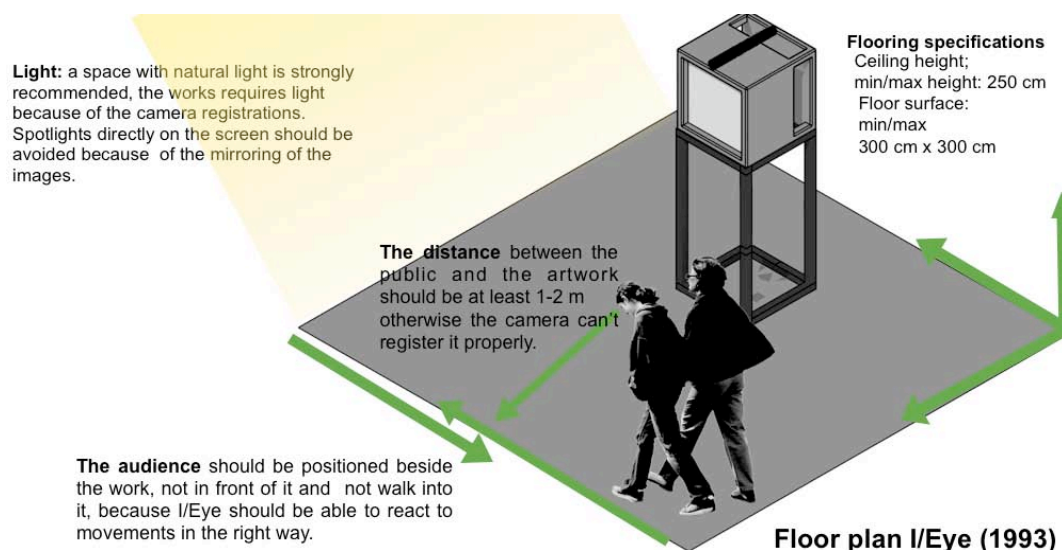

Light: a space with natural light is strongly recommended, the works requires light because of the camera registrations. Spotlights directly on the screen should be avoided because of the mirroring of the images.

Flooring specifications
Ceiling height;
min/max height: 250 cm
Floor surface:
min/max
300 cm x 300 cm

The distance between the public and the artwork should be at least 1-2 m otherwise the camera can't register it properly.

The audience should be positioned beside the work, not in front of it and not walk into it, because I/Eye should be able to react to movements in the right way.

Floor plan I/Eye (1993)
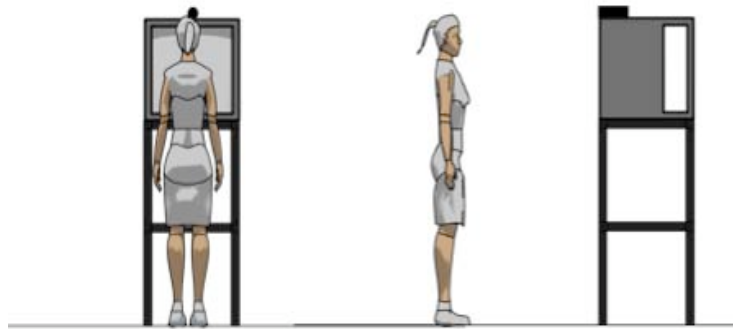
Diagram 1: General display instructions.

Diagram 2: Pedestal. The monitor should be placed over a pedestal at eye level against a wall.

Installation Instructions: step-by-step

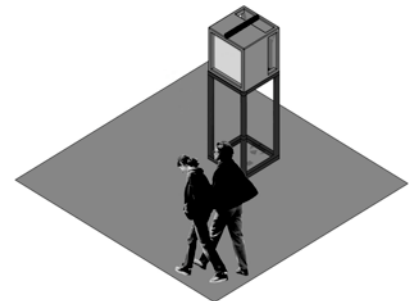| **Table 2:** Installation Instructions: step-by-step	
•Find a proper location to install the artwork (see figure 11 and diagrams 1 and 2). Be aware that a minimum distance between the audience and *I/Eye* should be at least one to two meters. •Position the pedestal (diagrams 2 and 3). •Place the monitor.	 **Figure 11**: the location and disposal of the artwork should follow the general guidelines for presentation.
•Place the black metal leg (figure 13), which holds inside the camera and lens (figure 12), in the middle of the monitor and attach it with gaffer tape (diagram 3). **Figure 12**: Monacor surveillance video camera.	 **Figure 13**: black metal leg used to hold the camera and the lens.
•Hook up the cables. The monitor and camera cables should be connected to the computer. Plug the keyboard and mouse into the computer's ports (figure14). Then plug the computer's cable in the socket/power.	 **Figure 14**: The monitor and camera cables must be connected to the computer as well as the keyboard and the mouse.

• Start the computer. <u>Additional comments:</u> if switching on the computer and it doesn't work properly please check that all the cables are plugging correctly. If on the screen appear colour vertical stripes the most likely cause of this issue is a Ram Error, for instance, it could be a memory module that is failing. On the other hand, if the screen turns in one colour, it may be a display error. Please refer to the Operating System Manual (RISC OS (figure 15)) to find out more. •Run the *I/Eye*	 **Figure 15**: Operating System RISC OS.
•Check that the image of the eye fills the entire screen (figure 16). Sharp the image on the monitor. Check that the camera is working properly.	 **Figure 16**: The eye image must fill the entire screen of the monitor.
•Place the computer off the audience's. A wooden box has been used in previous installations to store the computer, keyboard and the mouse (figure17).	 **Figure 17**: wooden box used to store the computer, keyboard and the mouse.

Camera & lens
The camera must remain hidden, it should be positioned inside a black metal leg. The camera and lens are attached to the leg by tape. The metal leg must be positioned on the top of the monitor (in the middle)

Height 10 cm
Width 10 cm
Depth 35 cm
Weight 3 kg
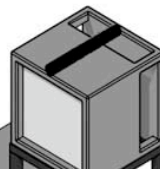
Monitor:
Sony Cube Monitor PVM (2130)
*The image of the eye must fill the entire screen.

Heigh: 48cm
Width: 51cm
Depth: 49cm
Weight:7,5 kg

Pedestal:
Black metal pedestal (thin frame), very neutral, it shouldn't drawn attention on it. It must be the exactly the same size as the bottom of the monitor; the pedestal should allow the monitor to be placed at the eye/height level.

Height: 1.25 cms
Width: 50 cm
Depth: 50 cm
Weight: 1.2 kg

Notes: The artist's favorite pedestal is that used by Peter baan Muler for "Bomen" or the one used when I/Eye was exhibited in Groningen.

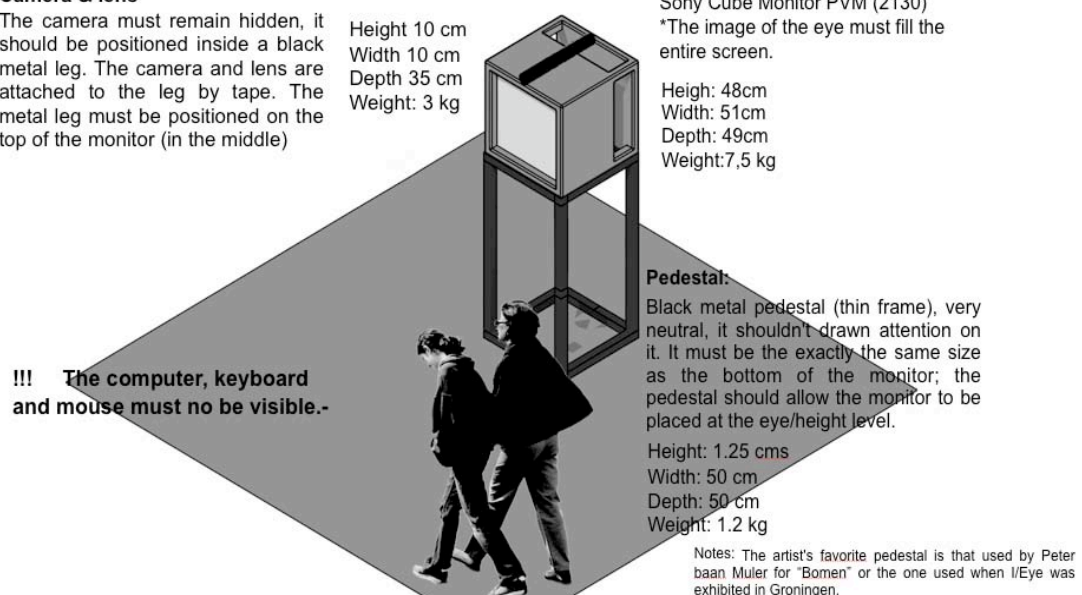!!! The computer, keyboard and mouse must no be visible.-

Diagram 3: Installation and its technical specifications.

3.4 - Equipment specifications of *I/ Eye* (version 2011)

Table 3: List of components *I/Eye* (version 2011)
Hardware
• An USB 2, USB3 or Ethernet poort depending on the camera • Sony Cube Monitor PVM (2130) (figure 8) • Monacor surveillance video camera casing (figure 9) • Every video digitizer with camera, Ethernet or USB 2 or 3 camera that fits within the original camera casing. • Fisheye lens.
Software
• Windows XP Vista, Windows 7, Windows 8, OSX, Linux • VMware player (for Linux and Windows)[33], (VM stands for Virtual Machine) • VMware Fusion (for OSX)[34] • PowerStrip (Windows)[35]
Extras
Cables: monitor cable, electricity cable.

4. PRODUCTION

4.1 - Production History of *I/Eye*

In order to get better acquainted with the sense of the development and meaning of *I/Eye* (1993) a historical research into the specific technology and equipment used along the installation's "life" is fundamental. Unfortunately, there is not an accurate technical documentation, which can help tracing the media archaeology of the multiple editions and versions of *I/Eye*; the lack of information does not allow to state the exactly dates of production nor to define the characteristics/ importance of the components of each edition.
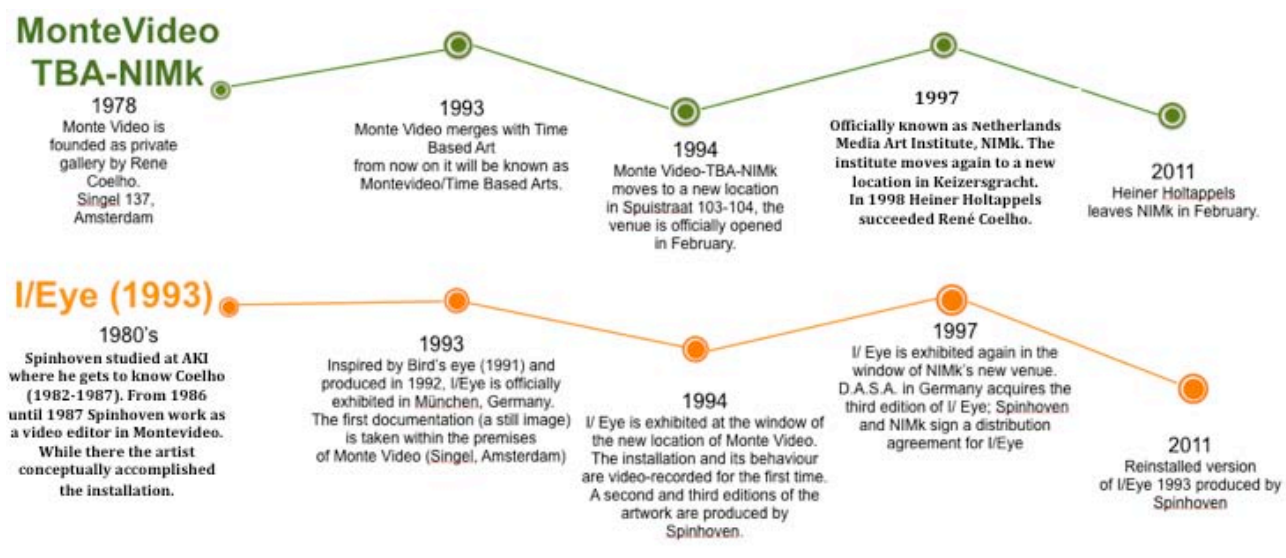

Figure 18: Production and evolution of the Installation *I/Eye* (1993) in relation to NIMk's history.

Bill Spinhoven is a Dutch artist who explores the spectator's perception of time, space and image. His installations are often interactive, and most of the time they are based on software development. There is also present a strong relation between hardware components and visual interfaces[36]. At the same time, his works are triggered by audience's movements or they require direct participation of the public. Spinhoven's artistic production is considered as part of the "interaction wave" that in the mid-nineties led to the transition from the analogue video art to digital media art[37].
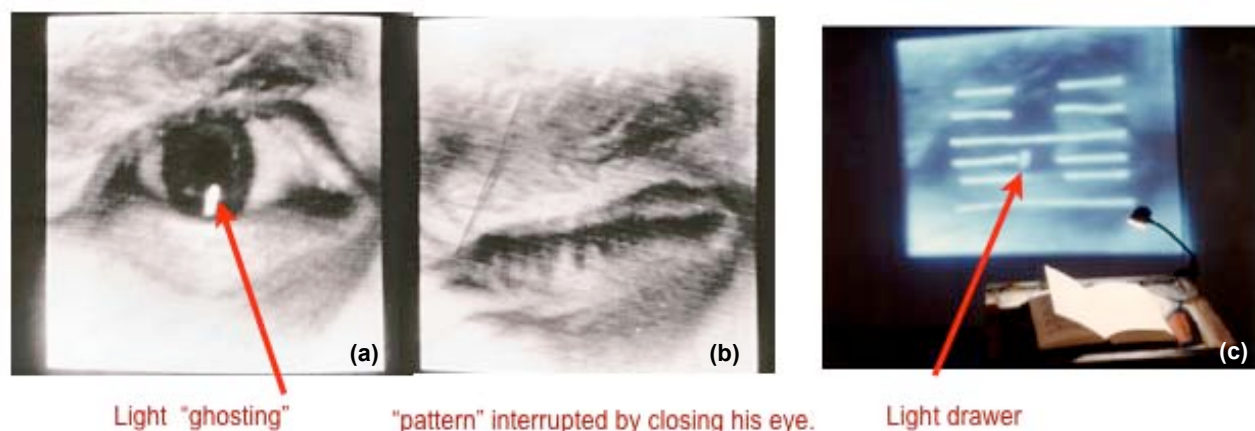
Figure 19: image with an effect of "ghosting". (a) Image of the artist's eye; the eyelashes, the eyebrows and eyelids showing a "ghosting" of the light reflection. (b) The "ghosting" disappears when the eye is closed. (c) Inspired by this experience, Spinhoven produced Birds Eyes where the eye (in this case only the pupil) moves across the screen leaving traces from the " ghosting", thus, giving the impression/ effect to draws with the light.

On the book "Close Circuit. Videoinstallationen" the German-based media art researcher, Slavko Kacunko, points out that the production's history of *I/Eye* (1993) can be traced back in the late 1980's, when Spinhoven worked as video editor at MonteVideo[38]. Since then, the artwork's development has been very close to the institute's history making part of its collection. In addition, *I/Eye* was exhibited in different NIMk's locations, making part of exhibitions that had a great impact to the artwork's history (see figure 18).

Figure 20: an installation by an unknown artist. Venice Biennale, Italy, 1993. Source: Bill Spinhoven's personal archive.
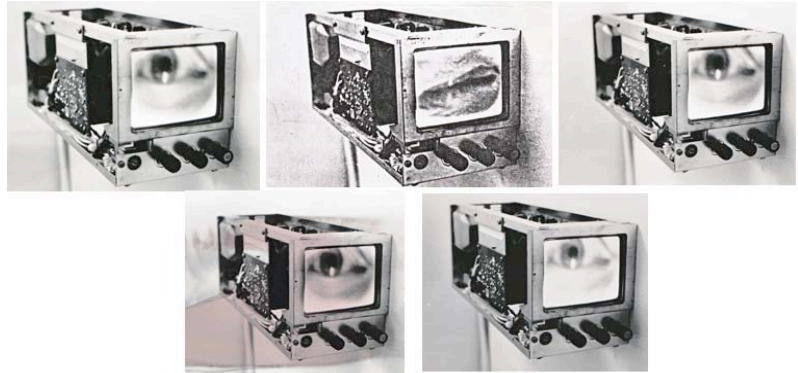
Figure 21: *I/Eye* prototypes. Source: Bill Spinhoven's personal archive.

While working with René Coelho, the artist had the opportunity to be surrounded by the most sophisticated technological video tools such as analogue video cameras including the first generation of close circuit cameras with Vidicon tubes[39]. When Spinhoven was experimenting with that equipment, he became aware of the tube's tolerance to brightness. The artist realised that if he strongly illuminates his face especially his eye, the light's reflection pick up through the close-circuit tube appeared on the monitor as an image with an effect of "ghosting" (figure 19). This enabled the artist to draw or to register movement through the light on the screen. The effect as "pattern" could be easily interrupted or "erased" by closing his eyes. Although, very pleased with the outcome of his experiment, it wasn't until the early 1990s that the idea matured and it became the artwork entitled *Birds Eye* (1991)[40].

Figure 22: Arcorn Archimedes Computer in the artist possession.

Spinhoven kept on developing this concept, and later led by the technical groundwork of *Birds Eye* and possibly inspired by the work of other artists and thinkers (figure 20), he produced the first *I/Eye*. The artist accomplished this installation as an interactive software-based installation[41] (figure 21), and he wrote the

software's code using BASIC V Assembler programming language[42]. Spinhoven used five video digitised images of his own eye as interaction options.

I/Eye's system consists in a close-circuit camera, a monitor and the software. The surveillance camera detects the passers-by/ viewer's movements and through software processing, computer recognizes the sense of displacement, thus causing an output image that gives the impression that the eye can follow the passers-by. The artist's gaze follows the viewer's movements in real time and as long as they are within the camera's range. Eyelids' movements occasionally accompany the pupil's motion, which gives a more realistic feeling to the image.

The **first edition** of *I/Eye* was produced in 1992. Although, there is not a written source that confirms this statement, it is highly likely that Spinhoven used an Acorn Archimedes computer[43] (figure 22). In order to improve and enhance its performance the artist modified the computer's hardware. He added one graphic card, one extra memory of 4 meg, one backplane, one digitiser, and a arm3 processor, which is faster. Despite of the fact that there is not technical information about the monitor, the visual documentation shows a Philips TV monitor with a spherical screen (image 23). He used a close-circuit camera with auto lens adjusted with fisheye lens to have a wider view.

The **second edition** of *I/Eye* was produced in 1993 and paid by MonteVideo-TBA in July 1994. Spinhoven kept on using an Acorn Archimedes computer, however, he did some improvements and changes to the display equipment. For instance, he modified the camera's diaphragm so it could deal with the amount of lights, and instead of the Philips monitor he used a Sony monitor PVM 2130 (image 24).

Spinhoven produced two subsequent editions: **edition#3** (1994) and **edition #4** (1995)[44]. In 1997 **edition#3** was purchased by D.A.S.A. and the other became part of the artworks distributed by NIMk[45]. These two editions have slightly different appearance and some technical diversity [46].
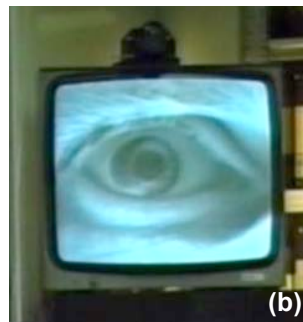

Figure 23: (a) and (b): *I/Eye* (1993) at Montevideo - TBA, 1994.

Figure 24: *I/Eye* (1993) displayed in a Sony monitor PVM 2130, circa 1995.

In 2005 the artist produced a **second version** of *I/Eye, I/Eye* (2005), for Hengelo's library. This version features a high definition and a coloured eye's image[47]. *I/Eye* (2005) is not technically or aesthetically strongly related to the installation's first version and its four editions. Even the way that the artist has stated that this version could be displayed is not related with *I/Eye* (1993). The use of different and more contemporary technologies allows the diversity on display modes; for instance, this version can be presented in one or in multiple monitors, projections and screens.

Evidently, *I/Eye* (1993) has evolved and transformed over the time (figure 25). Spinhoven has produced four editions and two versions of the installation, which clearly may have different performance and appearance.

Moreover, the presentation of *I/Eye* changes every time: the context, the audience, and the display vary. However, Spinhoven believes that these installations share the same core meaning and they behave in the same way, and consequently they must be considered as part of the life-process of the same artwork. Although, the artist had updated the software, in view of the special editions, he made for each commission he had, and had also made improvements in the hardware and display equipment, the installation's four editions behave in the same way and share the same core conceptual and technical aspects. Any further edition of this installation should retain these 'integral' values, as they are essential to the work's meaning. It must be a software-driven installation. The interaction of the audience is integral to the meaning. The display image must be the same (the artist's eye), if the image is modified the identity of the work is completely altered. The monitor have changed which could imply that this element is not integral to the meaning of the work, as long as it remains displayed through a monitor that retains the same shape. The camera and computer are hidden so their role is purely functional, although their replacement could affect the behaviour of the work.
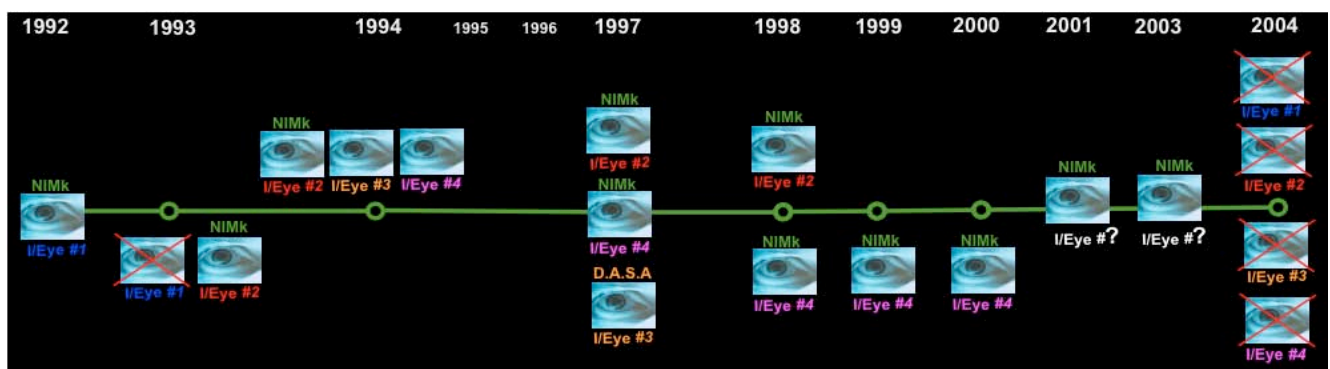

Figure 25: *I/Eye* (1993) production history. Four editions have been accomplished since 1992. In 2004 none of the four editions made form *I/Eye* first version were up and running.

5. Conservation

5.1 - General condition report

According with previous reports, none of the four editions of *I/Eye* (1993) is working properly: edition #1 is damaged; edition #2 consists of spare parts as the components were split and used differently; edition#3 and edition#4 do not work. The only version, which can still be presented, is the colour version, *I/Eye* (2005).

The most appealing challenges in the preservation of media art are the failure of the storage media (hard disc) and the obsolescence of physical storage formats. *I/Eye* (1993) faces physical and chemical deterioration, and malfunctioning of the hardware, as well as obsolescence phenomena. One of the major concerns in preserving *I/Eye* is the obsolescence and the software's proper operability. The software works on Acorn Archimedes/RISC operating systems, but these platforms and the computers are now obsolete.

I/Eye conservation state report:

1. Chemical deterioration of the computer's battery (figure 26)

The artist has observed that when the computer's battery is left unused for long periods of time or if they are under uncontrolled environment conditions, or even when the battery is old, it can leak and usually it may led to its corrosion. Any leakage is very corrosive and can quickly damage the motherboard beyond repair. Spinhoven uses spare parts from other computers. However, he states that it is quite difficult to find a replacement for the battery.

2. Computer's lack of functionality, and wear and tear

It is possible to observe physical damages, dust and dirt in the computer's keyboard caused by wear and tear (figures 27 and 28). Besides that the computer presents, in general, a lack of functionality also caused by normal wear and aging.
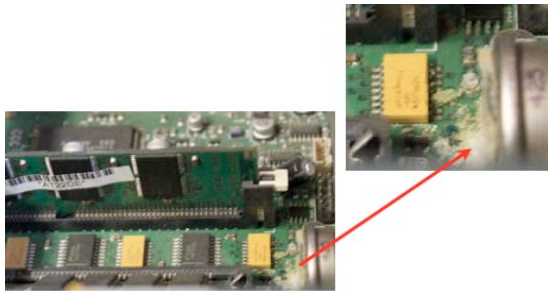

Figure 26: Chemical deterioration of the computer's battery.

Figure 27: Dirtiness and physical deterioration in the computer's keyboard.

3. Obsolescence

The obsolescence of the operating system causes the incorrect functionality and performance of the software. In addition, the display and playback equipment are also threatened by obsolescence and future translations into new equipment devices might introduce changes to the artwork's meaning.
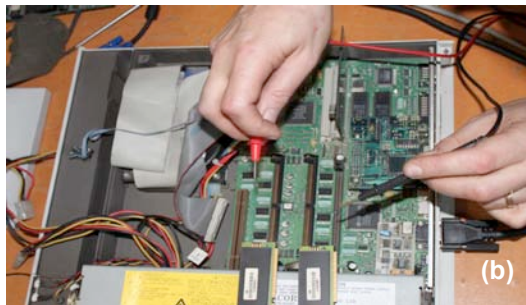

Figure 28 (a) and (b): Bill Spinhoven cleaning and repairing the computer Acorn RISC PC 600.

5.2. Obsolescence of the equipment and strategy in case of obsolescence/ replacement for each of the electronic components

See *In case of replacement/ obsolescence* in 2.3 List of components *I/Eye* (1993).

6. ART HISTORICAL RESEARCH/ CONTEXT

6.1 - Display history of *I/Eye* (1993/2011)

Since it was first featured at the exhibition *Künstliche Spiele* in 1993, *I/Eye (1993)* has been presented in many venues and it has been installed in different ways (see table 4: *I/Eye* display history); based on the few images and registrations, can be pointed out that *I/Eye (1993)* has been displayed in three main ways: hanging from the ceiling, attached to the wall or placed over pedestal. For instance, at the St. Lucas Ziekenhuis, *I/Eye* (1993) was attached to the wall, and during the exhibition at Tschumipaviljoen *I/Eye* (1993) was positioned over a black metal very simple pedestal.

Spinhoven considers as the ideal display of *I/Eye (1993)*, the way the work was installed in MonteVideo-TBA in 1994 (figure 29). The monitor was positioned in front of the window facing the street where a natural flow of people walked by. Nevertheless, the plinth was not perfect because it was built in wood. In addition, it was

bigger than the monitor's base, what drawn too much attention. Spinhoven has stated that he would have liked to install the monitor outside, above the entrance of the gallery, but he was not able to do it.

Figure 29: *I/Eye* (1994), Bill Spinhoven. Installation view. NIMk, Amsterdam, The Netherlands. Source: NIMk's catalog.
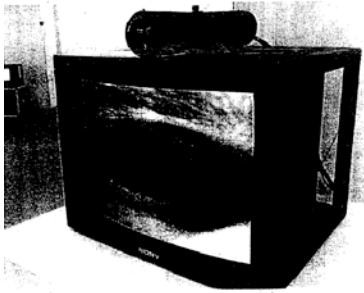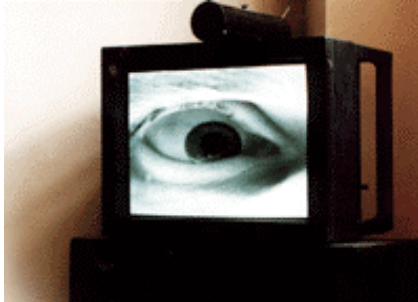
The redundancy of the audiovisual documentation has disabled tracing the diversity of display approaches. Nevertheless, it is evidently that in some of these presentations, the meaning and behaviour of the installation have been completely misunderstood. For instance, at the exhibition *Point de Vue: Honderd Jaar Kijkmachines* and *The second* in Japan, the monitor was positioned over a wood pedestal but it was very high and it drew too much attention (figure 31). During the exhibition *Kinetik und Interaktion. Multimediale Kunst aus den Niederlanden,* in Germany, *I/Eye (1993)* was hanged from the ceiling and it was too high, therefore the eye's movements couldn't be triggered by the passer-by (figure 37). In 2003, at *Dertig jaar Nederlandse videokunst, I/Eye (1993)* was display on the window but then again the camera was too high and it couldn't register properly (figure 30).

I/Eye (1993/2011) Display History
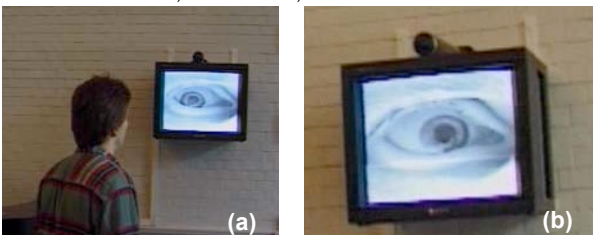
Tabel 4: *I/Eye* (1993/2011) Display History	
Exhibition/ event information	Pictures
2011	
• **Date/ location:** 24 Feb. - 20 Mar., NIMk • **Title of the Exhibition/Event:** To Transfer or to Transform[48] • **Description:** event concerning the research about virtualization as conservation strategy for computer-based art. • <u>Additional comments:</u> the event aimed at presenting two versions of *I/Eye*, the original version from 1993, with the technology which was then used, and a re-installation with technology from 2011 (figure 30).	 **Figure 30:** *I/Eye* (1993/2011), Bill Spinhoven. Installation view. Exhibition: *Dertig Jaar Nederlandse Videokunst*, NIMk, Amsterdam. © Hanna Hölling
2007	
• **Date/ location:** 13 Dec. - 27 Dec.; Media Lab Enschede. • **Title of the Exhibition/Event:** *3D Donderdagen* • **Description:** *I/Eye* (2005), version #2 (colour, high definition) • <u>Additional comments:</u> According with the latest condition report, in 2006 the four editions of I/Eye (1993) are broken. Therefore, it is assumed that the version exhibited at this event was the colour, high definition version.	
• **Date/ location:** unknown date; gallery Lewis Glucksman in Cork, Ireland • **Title of the Exhibition/Event:** *Embodied Time, Art Video 1970 to the present*.[49]	

• **Description:** *I/Eye* (2205), version #2 (colour, high definition)	

2006	
• **Date/ location:** 12 Dec. - 25 Feb.; Lewis Glucksman Gallery, Cork, Ireland.[50] • **Title of the Exhibition/Event:** Embodied Time - Art Video, 1970 to the present • **Description:** *I/Eye* (2005), version #2 (colour, high definition)	
2003	
• **Date/ location:** 5 Jul - 31 Aug.; Rohkunstbau Castle,Groß Leuthen, Germany. • **Title of the Exhibition/Event:** *A European Portrait #1*	
• **Date/ location:** 28 Jan. - 8 Feb.; NIMk • **Title of the Exhibition/Event:** *Dertig Jaar Nederlandse Videokunst* • <u>Additional comments:</u> *I/Eye* was displayed on NIMk's window facade during the exhibition *Dertig Jaar Nederlandse Videokunste*. • <u>Image source (figure 31):</u> this image can be found at NIMk's Communication Archive. Ellen Roest's report[51].	 **Figure 31:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *Dertig Jaar Nederlandse Videokunst*, NIMk, Amsterdam.
2001	
• **Date/ location:** 31 Aug - 1 Sep; De Balie, Amsterdam, The Netherlands.[52] • **Title of the Exhibition/Event:** *The Society of Control*	
2000	
• **Date/ location:** 13 Apr - 04 Jun; Prague National Gallery, Prague, Czech Republic.[53] • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands*. • **Description:** editions distributed by NIMk	
1999	
• **Date/ location:** 16 Sep- 17 Oct; Ludwig Museum of Contemporary Art, Budapest, Hungary[54]. • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands.* • **Description:** editions used were the ones distributed by NIMk	
• **Date/ location:** unknown date - 22 Oct; Technische Universiteit Eindhoven, Eindhoven, The Netherlands. • **Title of the Exhibition/Event:** Untitled.	

1998	
• **Date/ location:** 13 Nov-27 Dec**.;** Inter Communication Centre (ICC/ NTT), Tokyo, Japan[55]. • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands.* • **Description:** editions used were the ones distributed by NIMk • <u>Image source (figures 32 and 33):</u> digital image, available at URL's: [http://www.spinhoven.nl/work/EN/workieye1.htm] and at [http://www.ntticc.or.jp/Archive/1998/The_Second/Works/i_eye.html] accessed on 16-10-10.	 **Figure 32:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *The Second, Time Based Art from the Netherlands,* Inter Communication Center (ICC/ NTT), Tokyo, Japan. **Figure 33:** *I/Eye* (1993), Bill Spinhoven. Installation view; detail. Exhibition: *The Second, Time Based Art from the Netherlands,* Inter Communication Center (ICC/ NTT), Tokyo, Japan.
• **Date/ location:** 15 Aug - 01 Nov**;** The Taipei Fine Arts Museum (TFAM), Taipei, Taiwan[56]. • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands.* • **Description:** editions distributed by NIMk	
• **Date/ location:** 14 May-14 Jun**;** Cultureel Centrum De Vest, Alkmaar, The Netherlands. • **Title of the Exhibition/Event:** *WERK*	
• **Date/ location:** 28 Mar-25 Apr**;** Kunstuitleen Hof 88 Almelo, The Netherlands[57]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 05 Mar - 05 May**;** Museo del Chopo, Mexico, D.F., Mexico.[58] • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands.* • **Description:** editions used were the ones distributed by NIMk	
• **Date/ location:** 21 Feb - 21 Mar**;** Kunstuitleen Zeeland/ Buro Beeldende Kunst Vlissingen, The Netherlands[59]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 17 Jan – 15 Feb**;** CBK Groninger, The Netherlands[60]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	

• **Date/ location:** 6 Dec – 10 Jan 98**;** Artoteek Breda,The Netherlands.[61] • **Title of the Exhibition/Event:** *Kunst met een stekker* • <u>Additional comments:</u> the picture (figure 34) is related to the touring Dutch exhibition entitled *Kunst met een stekker.* Nevertheless, in Ellen Roest's report, the same picture is related to the exhibition *Short Cuts* held in DASA, Dormunt, Germany in 1997 (see figure 36).	 **Figure 34:** I/Eye (1993), Bill Spinhoven. Installation view. *Kunst met een stekker*, Dutch touring exhibition (1997-1998).
• **Date:** 1 Nov-29 Nov • **Location:** Stichting Kunstcentrum Delft, The Netherlands[62]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 4 Sep- 28 Sep**;** Kunstuitleen Tilburg, (at FAXX Podium voor hedendaagse kunst), The Netherlands[63]. • **Title of the Exhibition/Event:** *Kunst met een stekker* • <u>Image source (figure 35)</u>**:** photocopy of the text "FAXX: Kunst met een stekker" by Anne van der Burgt, in Brabants Dagblad, 16 September 1997[64].	 **Figure 35:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *Kunst met een stekker,* Inter Communication Kunstuitleen Tilburg, (at FAXX Podium voor hedendaagse kunst), The Netherlands.
• **Date/ location:** 22 Aug- 5 Oct; DASA, Dormunt, Germany. • **Title of the Exhibition/Event:** *Short Cuts* • <u>Image source (figure 36)</u>: obtained from Ellen Roest's report[65].	 **Figure 36:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *Short Cuts,* DASA, Dormunt, Germany.
• **Date/ location:** 10 Jun- 10 Jul; CBK Dordrecht, The Netherlands[66]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 4 May- 1 Jun; Artoteek, Den Haag, The Netherlands • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 27 Mar- 26 May; Artoteek Amsterdam Oost, The Netherlands[67]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	
• **Date/ location:** 25 Jan-9 Ma**r;** CBK Leiden, The Netherlands[68]. • **Title of the Exhibition/Event:** *Kunst met een stekker*	

• **Date/ location:** 1 Aug- 30 Aug; Stedelijk Museum, Amsterdam, The Netherlands. • **Title of the Exhibition/Event:** *The Second, Time Based Art from the Netherlands.* • **Description:** editions distributed by NIMk • <u>Additional comments</u>**:** According with Roest's report, the image is included on the interactive CD-ROM *The Second.* The image is believed to come from the exhibition at the Stedelijk Museum (January 25 to March 9, 1997). [69] • <u>Image source (figure 37)</u>**:** (primary): Based on Ellen Roest's report.	 **Figure 37:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *The Second, Time Based Art from the Netherlands,* Stedelijk Museum, Amsterdam, The Netherlands.

1996

• **Date/ location:** 30 Jun- 11 Ago; Städtischen Museum, Gelsenkirchen, Germany. • **Title of the Exhibition/Event:** *Kinetik und Interaktion. Multimediale Kunst aus den Niederlanden.* • <u>Additional comments</u>**:** The image is believed to come from the exhibition at Gelsenkirchen, Germany. • <u>Image source (figure 38)</u>: paper-based photography at Collection-Conservation NIMk paper archive.	 **Figure 38:** *I/Eye* (1993), Bill Spinhoven. Installation view. Exhibition: *Kinetik und Interaktion. Multimediale Kunst aus den Niederlanden,* Städtischen Museum, Gelsenkirchen, Germany.

1995

• **Date/ location:** 16 Apr- 4 Jun; Tschumipaviljoen, (Hereplein) Groningen, The Netherlands. • **Title of the Exhibition/Event:** unknown • <u>Image source (figures 39 and 40)</u>: Digital image available at URL:[http://www.tschumipaviljoen.org/projecten/10/i-eye] accessed 16-10-10.	 **Figure 39:** *I/Eye* (1993), Bill Spinhoven. Installation view. Tschumipaviljoen, (Hereplein) Groningen, The Netherlands.Museum, Gelsenkirchen, Germany. **Figure 40:** *I/Eye* (1993), Bill Spinhoven. Installation view. Tschumipaviljoen, (Hereplein) Groningen, The Netherlands.Museum, Gelsenkirchen, Germany.

1994	
• **Date/ location:** 16 Apr- 4 Jun; Tschumipaviljoen, (Hereplein) Groningen, The Netherlands. • **Title of the Exhibition/Event:** unknown	
• **Date/ location:** 1 Aug- 31 Dec; St. Lucas Ziekenhuis, Amsterdam, The Netherlands. • **Title of the Exhibition/Event:** unknown • **Description:** *I/Eye* (1993) edition#2 • <u>Additional comments</u>**:** according with Ellen Roest's report about I/Eye[70] these images (figures 41 and 42) are attributed to the exhibition at St. Lucas Hospital and the original source can be found on the Communication Archive at NIMk. The report's author also mentioned the following online source [http://www.nkom.hu/_img/eye.JPG]; but evidently the domain ".hu", which means Hungary-based source, cannot be related with this exhibition.	 **Figure 41:** *I/Eye* (1993), Bill Spinhoven. Installation view. St. Lucas Ziekenhuis, Amsterdam, The Netherlands. **Figure 42: (a) and (b):** *I/Eye* (1993), Bill Spinhoven. Installation view. St. Lucas Ziekenhuis, Amsterdam, The Netherlands.
• **Date/ location:** 29 Apr- 29 May; Netherlands Filmmuseum, Amsterdam, The Netherlands. • **Title of the Exhibition/Event:** *Point de Vue: Honderd Jaar Kijkmachines.*	
• **Date/ location:** Feb/ Mar; NIMk. • **Title of the Exhibition/Event:** unknown • **Description:** *I/Eye* (1993) edition#1 • <u>Image source (figure 43):</u> NIMk's website[71] • Additional comments: this image (figure 43) is a still image from the exhibition video registration titled "Registratie Galerie René Coelho"[72].	 **Figure 43:** *I/Eye* (1994), Bill Spinhoven. Installation view. NIMk, Amsterdam, The Netherlands.
1993	
• **Date/ location:** 1992-1993; Montevideo- TBA, Amsterdam, The Netherlands. • **Title of the Exhibition/Event:** unknown • **Description:** *I/Eye* (1993) edition#1 • <u>Image source (figure 44):</u> the original sources of this image (figure 44) are two colour and three black and white photographic film negatives (in the artist's possession). A paper-based image can be found at Collection-Conservation NIMk's archive. The digital is widely disseminated through online sources and publications.	 **Figure 44:** *I/Eye* (1993), Bill Spinhoven. Installation view.

6.2 - Documentation about *I/Eye*

This section brings together sources of documentation concerned with I/Eye (1993). Unlike traditional approaches to the art-making, which consist in the creation of unique and unrepeatable single objects, software-based installations refers to complex, multiple and variable artworks[73]. Their changeability and multiplicity, and their strong link with technologies/ time/ audience's experience, have forced into a paradigm shift in the conservation field and have led to the creation of new models of documentation[74].

According to Spinhoven, *I/Eye* shouldn't be fixed nor frozen into one specific medium. The artist states that his work's conservation can only be achieved by allowing the installation to keep on changing through its life[75]. Clearly the short-life span and rapid obsolescence of its components (display equipment, hardware configuration and software) force it to always keep on transforming; but how far can *I/Eye* change without losing its "original" look and core meaning? How the visual and technical elements should be retained? What is the role of the institution in documenting, mapping and tracing the initial appearance and functionality of *I/Eye*?

Figure 45: *I/Eye* (1993). Still image from video recording at MonteVideo - TBA, Spuistraat, Amsterdam, 1994.

Over the life of *I/Eye* (1993) there are three main documents that are often used as a written and audiovisual reference. These documents have been widely disseminated and they have been used again and again to announce and to draw attention into shows featuring this installation: a still image from 1992-1993 (figure 44 and 48), a video recording from 1994 while exhibited at MonteVideo-TBA (figure 45) and finally a text written by Jorinde Seijdel *circa* 1994. The still image seems to be the first visual document of the installation. Although, it was not possible to identify the photographer, it is highly likely that the picture was shot at MonteVideo-TBA between 1992 and1993[76]. The photography shows a Philips TV monitor with rounded - shaped edges screen; the black metal leg (that holds the camera) seems to be far much longer than the monitor's width.

Figure 46: Three documentation exhibitions featuring *I/Eye* (1993). Independently of the date, location and context of each exhibition, the visual documentation is always the same.

Additionally, the image does not show how the installation operates or behaves.

Up to now, the most accurate visual document of *I/Eye* is the video recorded and edited by Ramon Coelho. The documentation is the most well-known and disseminated record of the installation and it was taken while the artwork was displayed at the window of MonteVideo - TBA, in 1994[77]. The visual recording is not only concerned with capturing the aesthetic elements of the artwork, but rather it focuses on documenting the behaviour of the installation and the audience's experience. The short video shows how the passer-by triggers the eye's movement and how the observer reacts surprisingly when he/ she realises that the eye is following and watching at him/her. Finally, the essay by Jorinde Seijdel has become the major written reference about *I/Eye*. Seijdel describes the behaviour of the artwork emphasising its impact on the viewers. This text has been cited, re-interpreted and re-used in catalogues, online sources and articles.

While carrying out this research, many electronic and digital sources are no longer accessible (figures 46 and 47). Several URL's have changed or disappeared. Some video documentation and the CD-ROM-based *The Second* have become obsolete, which makes their accessibility more difficult. It may be highly difficult and time consuming to keep tracking of all sources of documentation, especially online sources. Therefore is highly recommended to create digital files of all the contents and refresh them frequently.
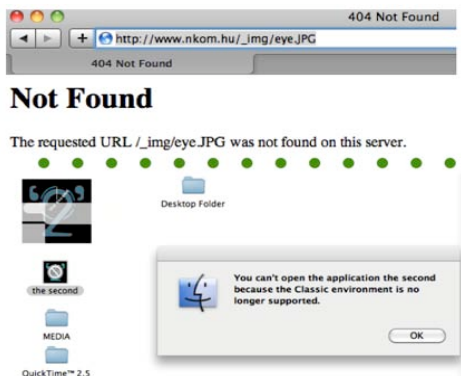
Figure 47: I/Eye's technology-based documentation which content can no longer be retrieved.

Figure 48: *I/Eye* (1993). Photographs taken at MonteVideo - TBA, circa 1992.

6.2.1 - Still images of *I/Eye*

See 6.1 Display history of *I/ Eye* (1993/2011).

6.2.2 - Video recordings of *I/Eye*

There are some documentation video recordings of *I/Eye*, available at NIMk. The first video was recorded and edited in 1994 by Ramon Coelho at MonteVideo-TBA[78] (figure 45). The installation also appears at the video registrations of the following exhibitions: *Dertig Jaar Nederlandse Videokunst*, NIMk, Amsterdam 2003; *The Second, Time Based Art from the Netherlands* at The Stedelijk Museum in Amsterdam, in 1997[79], and *Point de Vue: Honderd Jaar Kijkmachines* at Netherlands Filmmuseum in Amsterdam, in 1994[80].

Based on the NIMk's database a registration of *I/Eye* is included on the video recordings from the following exhibitions: St.Lucas Hospital in Amsterdam (1994); the Tschumipaviljoen in Groningenin (1995) and *The Second* at Ludwig Museum of Contemporary Art, Budapest, Hungary. Unfortunately, these tapes can't be located[81].

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[1]For further information see URL's: [http://nimk.nl/] and [http://www.packed.be/], accessed 4-08-10.

[2]For further information about the project see URLs: [http://www.packed.be/en/projects/readmore/obsolete_apparatuur/] & [http://nimk.nl/eng/obsolete-equipment], accessed 4-08-10.

[3]According to information obtained from institutional contracts, NIMk acquired the installation *I/Eye* in 1993. Shortly after the institution pay the artist to produce a second version. In 1997, a contract for distributing the artwork was signed by the artist and NIMk.

[4]The research will explore the virtualisation as a preservation strategy; it will look into the technical and legal aspects of software's virtualisation. Further information about this case study and the full description of the research can be found at URL: [http://www.iart.nu/conservation_work.html] accessed 3-1-11. Virtualisation have become one of the strategies proposed for preserving digital art. For further information see URL: Digital Preservation Coalition [http://www.dpconline.org/], AktiveArchive [http://www.aktivearchive.ch/digitalconservation/media_in_motion_docam_final.pdf], NESTOR (Network for Digital Preservation) [http://www.langzeitarchivierung.de/eng/], KEEP (Keeping Emulation Environments Portable) [http://www.keep-project.eu/ezpub2/index.php] and POCOS (Preservation of Complex Objects Symposia) [http://www.pocos.org/], accessed 15-1-11.

[5]According to Pip Laurenson, an extensive research into the conceptual, historical and aesthetical aspects of any given time-based media installation must be carried out in order to identify the relationship between the display equipment and the significance/ meaning of the artwork. For further reading see: Laurenson, Pip, 'The Management of Display Equipment in Time-based Media Installations, in *Tate Papers*, Spring, 2004. Available at URL: [http://www.tate.org.uk/research/tateresearch/tatepapers/05spring/laurenson.htm], accessed 7-08-10.

[6]Until now, there is not a clear statement or strategy to document and preserve computer-based artworks. Previous initiatives such as DOCAM, Variable Media and Media Matters have pointed out that in order to preserve media artworks a complete description not only of the software or code but also of the administrative, descriptive and contextual metadata are required. Further more, the artist's involvement is highly important in order to identify key aspects of the work, such as the possible and future behaviours of the artwork. Additionally, it is fundamental for the decision making process to consider the importance of a specific hardware configuration for the function and meaning of the installation. DOCAM Decision Tree is a recent developed tool aimed at helping "to define the role played by the technological component as an element of the work's meaning". More information in regard with media art preservation can be found on DOCAM Model [http://www.docam.ca/en/restoration-decisions/a-decision-making-model-the-decision-tree/319-un-modele-de-prise-de-decision-larbre-decisionnel.html], Media Matters [http://www.tate.org.uk/research/tateresearch/majorprojects/mediamatters/], Variable Media [http://www.variablemedia.net/], and Forging the Future [http://forging-the-future.net/] accessed 20-01-11.

[7]By using the term 'institutional life' we would like to make reference to the strong relationship between a specific artwork with a particular institution. Clearly the institution plays a determinant role in the way that any given artwork is understood, is exhibited and is preserved; it could be said that *I/Eye* has a strong connection with two institutions: NIMk and D.A.S.A.. To define and describe all the particular institutional approaches in regard with the preservation of *I/Eye* requires time and resources that go beyond this case of study. This report is concerned exclusively with the version of *I/Eye* that was acquired by NIMk in 1993.

[8]See endnotes 5 and 6.

[9]Unstable media is a term originally conceived by the Rotterdam-based Centre for Art and Media Technology V2 for referring electronic and digital artworks. However, in recent times the term has been used as an umbrella term to make reference to artworks that are characterised by their variable behaviours, mobility, changeability, as well as, by their strong link with technologies/time/audience's experience. For further reading see: V2 [http://capturing.projects.v2.nl/], Variable Media [http://www.variablemedia.net/], PLANETS [http://www.planets-project.eu/docs/reports/Planets_PC5-D5_Emerging_Digital_Art_Tech.pdf], accessed 01-02-2011.

[10]See footnotes 5 and 6.

[11]Bill Spinhoven. Personal Interview, Hengelo, The Netherlands, 11 October 2010.

[12]IDEM.

[13]Kacunko, Slavko. "Closed Circuit Videoinstallationen: Ein historisch-geographischer Rückblick" in *Close Circuit. Videoinstallationen*, Logos Verlang, Berlin, 2004 - 2005. Available at URL: [http://www.slavkokacunko.de/fileadmin/cc_html_volltext/mainch3.html#x7-370003], accessed 11-11-10.

[14]More information available at URL's: [http://robperree.com/articles/126/video-art-in-the-netherlands-e] and [http://nimk.nl/eng/history-nimk]. Accessed 17-11-2010.

[15]See Kacunko, Slavko. "Closed Circuit Videoinstallationen: Ein historisch-geographischer Rückblick" in *Close Circuit.*

[16]Additionally, to the *purchase* contract and the document that states the payment for producing a second edition of the artwork, there is also a *distribution contract* (contracted number 045) signed by the artist and Montevideo/ TBA in 1997.

[17]See 3.4.1 Installation and Display Instructions.

[18]IDEM.

[19] All the elements, except for the monitor, are in possession of the artist. The monitor can be rented. All the versions and editions are in the artist possession except for one that belongs to DASA.

[20]Hartwagner, G, S. Iglhaut &F. Rötzer (eds)."The observer observed" in *Künstliche Spiele*, München, Germany, 1993. An English translation can be found at NIMk (internal document). Additional information at URL: [http://nimk.nl/nl/interview-with-rene-coelho] accessed on 25-1-11.

[21]Jorinde Seijdel is a Dutch art historian and critic. For further information see: URL: [http://www.formerwest.org/Contributors/JorindeSeijdel] accessed on 17-11-10.

[22]Seijdel, Jorinde. "I/Eye" in *The Second. Time Based Art from the Netherlands,* Netherlands Media Art Institute, Montevideo-TBA, Amsterdam, The Netherlands, 1997.

[23]Hans-Gerd Kaspers affirms that the installation plays with elements "ranging from the restriction of individual rights, the potential misuse of collected data, all the way up to casual voyeurism". He also points out that the overwhelming situation of being observed is lessened by the look of a human eye instead of a machine or robot. More information available at

URL: [http://artnetenglish.dortmund.de/artnetenglish/project/assets/template7.jsp?smi=5.0&tid=67062], accessed on 07-02-11.

[24]See Jorinde Seijdel, *Op. Cit.,* Kacunko, Slavko. *Op. Cit.*, Wageman Patty. "I spy with my little eye" in Art Preview, section Time Out Amsterdam/ Art, Galleries & Museums, 1994, and *Short Cuts Anschlüsse an den Körper*, DASA, Dortmund, Germany, 1997.

[25]Hans-Gerd Kaspers is the current Curator at DASA. For further information at URL: [http://www.dasa-dortmund.de/dasa/de/Presse/Pressemitteilungen/2010/09/pm103-10.html?nn=704480], accessed on 02-02-11.

[26]*I/Eye* by Hans - Gerd Kaspers. Available at URL: [http://artnetenglish.dortmund.de/artnetenglish/project/assets/template7.jsp?smi=5.0&tid=67062], accessed on 07-02-11

[27]Information based on the Conservation Report, internal document, NIMk, June 2003.

[28]For further reading about RISC PC 600 see URL's [http://acorn.chriswhy.co.uk/Computers/RiscPC600.html], [http://www.classicacorn.freeuk.com/32bit_machine_spec/rpc_6_7_sa/rpc_6_7_sa.html], accessed 13-1-11. For more information about RISC OS hardware see URL: [http://www.wrocc.org.uk/riscos/hardware.shtml], accessed 24-08-2011.

[29]Bill Spinhoven. Personal Interview, Hengelo, The Netherlands, 11 October 2010. Further information about this case study and full research description can be found at URL: [http://www.iart.nu/conservation_work.html] accessed 3-1-11.

[30]Further technical information about the camera and its lens see: URL's [http://videopreservation.conservation-us.org/vid_guide/4/4.html], [http://www.wecusurveillance.com/cctvnewsart], [http://en.wikipedia.org/wiki/Fisheye_lens].

[31]Further information can be found on the URL: [http://www.pagetable.com/docs/Archimedes%20Operating%20System.pdf]. Please confront Slavko Op. Cit. in [http://www.slavkokacunko.de/fileadmin/cc_html_volltext/mainad4.html#ennote-639]. Accessed 3-11-10.

[32]See endnote 6.

[33]For further reading about VMware player see URL: [http://www.vmware.com/products/player/], accessed 30-08-2011.

[34]For further reading about VMware Fusion see URL: [http://www.pcmag.com/encyclopedia_term/0,2542,t=VMware+Fusion&i=58710,00.asp], accessed 30-08-2011.

[35]For further reading about the program PowerStrip see URL: [http://downloads.guru3d.com/PowerStrip-3.75-download-169.html], accessed 30-08-2011.

[36] See Kacunko, Slavko. *Op. Cit..*

[37]IDEM.

[38]IBIDEM.

[39]More information about Video Camera tube Vidicon and Close Circuit Cameras available at URL's: [http://en.wikipedia.org/wiki/Video_camera_tube] and [http://videopreservation.conservation-us.org/vid_guide/4/4.html] accessed on 21-1-11.

[40]See Kacunko, Slavko. *Op. Cit..*

[41] Sometimes the behaviour of the installation has been misunderstood; for instance, *I/Eye* has been catalogued as a video work.

[42]Previous technical reports and Kacunko's text have stated that *I/Eye* (1992) was programmed in BASIC language. Others sources affirm the artist used Assembler or a combination between BASIC and Assembler. Based on the Archimedes Operating system's guide, the correct name of the language programming is BASIC V Assembler. Further information can be found on the URL: [http://www.pagetable.com/docs/Archimedes%20Operating%20System.pdf] Please confront Slavko *Op. Cit.* in [http://www.slavkokacunko.de/fileadmin/cc_html_volltext/mainad4.html#ennote-639], accessed 3-11-10.

[43]Spinhoven wrote the software, which works on Archimedes Operating System and runs on Archimedes Computers. However, on an institutional document containing the list of equipment of *I/Eye,* this component is enlisted as "computer eigendom CSL". The Acorn Archimedes was personal computer released by the British's company Acorn Computers Ltd. in 1987. More information about the Acorn Archimedes Computers available at the URL's: [http://en.wikipedia.org/wiki/Acorn_Archimedes], [http://en.wikipedia.org/wiki/Acorn_Computers]. Accessed on 4-1-11.

[44]See Bill Spinhoven list of works at URL: [http://www.spinhoven.nl/].

[45]The third edition is owned by DASA; the installation was displayed as part of their permanent collection until recently that it was removed due to lack of proper functionality. On the other hand, in January 1997 a distribution agreement concerned with the fourth edition of *I/Eye* was signed between NIMk-MonteVideo and the artist.

[46]Based on Hanna Hölling's notes, the equipment of the edition owned by DASA consist in: a JVC monitor colour video monitor TM 210 PS, a camera Hama semi fisheye 0,42x, a Computer Arcorn 286 PC Risc 0S 3.7. On the other hand, the technical information regarding the edition distributed by NIMk is not very accurate: Acorn Archimedes computer, Software, a camera with lens, digitiser, and a SONY PVM 2130 monitor. The operating system RISC OS succeeded the Archimedes in 1994. See the URL: [http://www.computinghistory.org.uk/det/6332/Acorn-Archimedes-310/].

[47]See Bill Spinhoven's website at URL: [http://www.spinhoven.nl/], accessed 1-2-11.

[48] For further reading about this event see NIMk website at URL: [http://nimk.nl/eng/to-transfer-or-to-transform-4], accessed 15-08-2011.

[49]Although the installation is in possession of the artist NIMk was in charge of distributing this version. [http://www.kunstaspekte.de/index.php?tid=28122&action=termin], accessed 1-2-11.

[50]See previous note.

[51]Report by Ellen Roest, NIMk internal document, June 2004, p.24-46.

[52]More information on URL: [http://post.in-mind.de/pipermail/spectre/2001-August/000002.html] accessed on 10-9-10.

[53]More information at the URL: [http://catalogue.nimk.nl/site/event.php?id=611] 13-10-10.

[54]A brief description of the exhibition can be found at URL [http://www.ludwigmuseum.hu/site.php?inc=kiallitas&kiallitasId=130&menuId=45] and [http://catalogue.nimk.nl/site/event.php?id=71], accessed 13-10-10.

[55]More information at the URL's: [http://catalogue.nimk.nl/site/event.php?id=73], [http://www.ntticc.or.jp/Archive/1998/The_Second/Works/i_eye.html] and [http://www.ntticc.or.jp/Archive/1998/index.html]

[56]More information at the URL: [http://www.nimk.nl/en/nieuws/detail.php?id=22&archief=ja&showjaar=2000&beginjaar=]

[57]More information at the URL: [http://catalogue.nimk.nl/site/event.php?id=99].

[58]The dates of these exhibition changes upon the source: March 5- May 5 (NIMk's online catalogue), April 5- May 5 (press release), March 5- April 30 (online article) More information at the URL's:
[http://catalogue.nimk.nl/site/event.php?id=43],
[http://www.nimk.nl/en/nieuws/detail.php?id=22&archief=ja&showjaar=2000&beginjaar=], and
[http://www.lapala.com/articulos/item/120-the-second-arte-en-torno-al-tiempo.html?tmpl=component&print=1]

[59]See the URL: [http://catalogue.nimk.nl/site/event.php?id=610] accessed 15-1-11.

[60]IDEM.

[61]IBIDEM.

[62]See the URL: [http://catalogue.nimk.nl/site/event.php?id=607] accessed 15-1-11.

[63]IDEM.

[64]Burgt, Anne van der. "FAXX: Kunst met een stekker"in Brabants Dagblad, 16 September 1997, p.5.

[65]The first version of this text (circa 1994) can be found as an internal document at the Netherlands Media Art Institute. The text has been distributed widely on diverse online sources: Japan's exhibition, Spinhoven's website and NIMk's online catalogue. See URL's:
[http://www.ntticc.or.jp/Archive/1998/The_Second/Works/i_eye.html],[http://www.spinhoven.nl], [[http://www.spinhoven.nl/] and [http://catalogue.nimk.nl/site/?page=%2Fsite%2Fart.php%3Fdoc_id%3D2834] accessed on 12-11-10.

[66]See the URL: [http://catalogue.nimk.nl/site/event.php?id=604], accessed 15-1-11.

[67]See the URL: [http://catalogue.nimk.nl/site/event.php?id=605], accessed 15-1-11.

[68]More information available at the URL:[http://catalogue.nimk.nl/site/event.php?id=602] accessed 15-1-11.

[69]See Report by Ellen Roest, NIMk internal document, June 2004 p.24-46.

[70]Report by Ellen Roest, NIMk internal document, June 2004, p.24-46.

[71]See URL: [http://nimk.nl/eng/to-transfer-or-to-transform-4], accessed 24-08-2011.

[72] See URL: [http://catalogue.nimk.nl/], accessed 24-08-2011. Recording available at NIMk's online catalogue under the title I/Eye. Numerous still images have also been taken from this source, see for instance the following URL's:
[http://www.tetem.nl/nl/activiteit/details/6/3d-donderdagen], IART [http://spinhoven-van-oosten.nl/?page_id=14] and Rohkunstbau [http://www.rohkunstbau.de/rkb2003/downloads/rkb_presse.pdf] accessed on 12-01-11.

[73]See footnotes 5 and 6. Further information about preserving software-based art can be found on Hunter, Jane and Sharmin Choudhury. "PANIC - an integrated approach to the preservation of complex digital objects using semantic web services" in International Journal on Digital Libraries: Special Issue on Complex Digital Objects, 2006, pp. 174–183; Becker, Christoph, (et. al.) "Preserving Interactive Multimedia Art: A Case Study in Preservation Planning", Vienna University of Technology and Ludwig Boltzmann Institute Media Art Research, Springer-Verlag Berlin Heidelberg 2007, pp. 257–266.

[74]Classical conservation approaches have been challenged by the variable behaviours, multiplicity and changeability of software-based art. "Radical changes in the interpretive framework" in addition with modifications in the practical methodologies must be achieved through a paradigm shift in Conservation Theory. See Cook, Terry. "Archival Science and Postmodernism: New Formulations for Old Concepts" in *Archival Science*, Vol. 1, Number 1, 2000, p.3-24.

[75]The Preservation through Change idea is addressed by the Variable Media Initiative. See Depocas, Alain, Jon Ippolito and Caitlin Jones (eds.). *Permanence Through Change: The Variable Media Approach*, Guggenheim Museum Publications, 2004 Available at URL: [http://variablemedia.net/pdf/Permanence.pdf] accessed on 03-02-2011.

[76]In the documentation concerned with the exhibition *Künstliche Spiele* in Germany from Sep- Oct 1993 the image is already included. Therefore we can assume that the photography was shot early that year. It could be taken either at NIMk's previous location at Singel or at its new venue in Spuistraat.

[77]For further information see 4.1. Production history of *I/Eye* (1993).

[78]The video appears on the section "Installations selection 1995" on the DVD series "Installations 1975-2006" (2007), Netherlands Media Art Institute. It is also available on NIMk online catalogue URL:
[http://catalogue.nimk.nl/site/art_play.php?doc_id=2834] and Bill Spinhoven's web page URL: [http://www.spinhoven.nl/], accessed on 12-11-10. Based on Ellen Roest's report (2004), the following documents are related with this event: Collectienumber 778 /Doc.2207, 771/ Doc. 2208, 1158/Doc.4972, 1161/ Doc.4976, 1164/ Doc.4979, 1177/ Doc.4998, 1179/ Doc.5000, and 1184/ Doc.5008.

[79]The footage is catalogued as foo.1997-0010; see minute 20'40''. The following documentation is related with this event: files 13617 and 17113; document 1158 and 1211; masters 420 and 553.

[80]According with the online catalogue there is a 5'31'' video recording of this event, but I couldn't find the documentation. However the unedited footages can be found on the under these catalogue numbers: foo.1994 0012 (from 13'10'' to 15'40''), foo.1994 0013 (from 10'00'' to 10'07'') and foo.1994 0014 (from 1'47'' to 2'00'' and from 17'45' to 18'35'').

[81]Ellen Roast's report points out the tapes couldn't be located. She mentions the following information: The recording from the Tschumipaviljoen is a fragment of one minute of preparation. The video from St. Lucas Hospital in Amsterdam is a recording of ten minutes long; it was made on September 28, 1994 (foo.1994-0018). In addition to these two footages, a short registration was made in 1999 from the Ludwig exhibition (foo.1999-0001); unfortunately the tape is missing too.