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# Medial Gestures. On the ‘decipherability’ of techno-images (Vilém Flusser) and their production

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Of the plethora of observations and contextualizations that Vilém Flusser puts forward in his book *Gestures* (Flusser 2014), I am interested here, and with respect to current research on archival processes relating to performative arts, in his approach to media theory in particular. This is manifest in the section of the book titled “Beyond Machines” and in the three chapters devoted to the gestures that produce “techno-images”, as Flusser himself dubbed them in a previous work (Flusser 1998b: 9–234): the gestures of photographing, filming and video.

Flusser’s interest in the phenomenology of gestures, as he terms it, is based on the hypothesis that observing these gestures and especially the way they change “allows us to ‘decipher’ how we live in the world.” (Flusser 2014: 142 [transl.: CK]) Hence we can expect the repercussions that the major switch from written documents to techno-images has (and will have) on thought, imagination and knowledge to be evident in the gestures that lead to their production. It should be stressed here that we are concerned with gestures as movements leading to the production of technical images. Whether and how this radical medial change is to be anticipated – more so than described by its consequences – is partly the subject of Flusser’s text *Into the Universe of Technical Images*, the first chapter of which, *To Abstract*, begins thus:

This essay is about the universe of technical images, the universe that for the past few decades has been making use of photographs, films, videos, television screens, and computer terminals to take over the task formerly served by linear texts, that is, the task of transmitting information crucial to society and to individuals. It is concerned with a cultural revolution whose scope and implications we are just beginning to suspect.” (Flusser 2011: 5)

Techno-images, the historically oldest of which Flusser identifies as photography<sup>1</sup>, and which he repeatedly refers to, are first and foremost images produced by technical apparatuses, but they are also something more and different:

The technical image is an image produced by apparatuses. As apparatuses themselves are the products of applied scientific texts, in the case of technical images one is dealing with the indirect products of scientific texts. This gives them, historically and ontologically, a position that is different from that of traditional images. (Flusser 2000: 14)

The scientific texts on the basis of which image-producing apparatuses function are the programmes that control them and that govern the gestures leading to the images' production. That is one of the fundamental insights that Flusser formulates in this and other texts, as well as the observation that this process of governing via programmes actually disappears within the apparatuses, like in black boxes.

It is true that with these images another factor places itself between them and their significance, i.e. a camera and a human being operating it (for example, a photographer), but it does not look as if this machine/operator complex would break the chain between image and significance. On the contrary: The significance appears to flow into the complex on the one side (input) in order to flow out at the other side (output), during which the process remains concealed: 'black box' in fact. The encoding of technical images, however, is what is going on in the interior of this black box and consequently any criticism of technical images must be aimed at the elucidation of its inner working. (Flusser 2000: 16)

When describing the gesture of photographing, Flusser concentrates on the recording process – creating a situation in front of the camera, selecting the setting by jumping between different points of view, which he sees as categorial states, releasing the shutter (Flusser 2014, 74). Throughout, he emphasises the indissoluble link between the photographer and the apparatus, on whose programme the entire gesture is based. Unlike the gesture of photographing, which jumps from viewpoint to viewpoint in the search for a suitable shot and is thus based on a 'categorial' apparatus for producing discrete images, Flusser sees the gesture of filming as one based on a 'processual' apparatus, "with the goal of capturing the world as a stream of indistinguishable images (indefinable concepts)" (Flusser 2014: 80). In his description, the core of the gesture of filming is shifted from the recording act to the act of processing the recorded material, to its montage or editing, which represents the radically new.

It [the radically new] is rather the 'technoimaginary': the temporal dimension of the depicted scene is represented by the unspooling of the filmstrip. This is what lets us see the essential thing about the filmic gesture. It is the gesture that makes strips intended to represent historical time. (Flusser 2014: 87)

In his description of the gesture of video, he shifts the focus again: Due to the virtual simultaneity of the recording and the transmission (on closed circuit), a new opportunity for a direct *dialogue* between the person recording, the process of recording and the material recorded (understood as both a situation in front of the camera and as a reproduced image) arises (Flusser 2014: 145–146). Occasionally Flusser links the operator's potential scope for freedom with the dialogic, reflecting on it as a form of playing against the apparatus, although knowledge of its mode of functioning and programmes remains an essential requirement.<sup>2</sup>

## Gesture and the apparatus-operator complex

When Flusser was developing his theory on the subject in the 1970s and 1980s, the full extent of the changes in this field had only just begun to emerge. His observations of certain medial developments were therefore destined to remain rudimentary and incomplete. In the past decades, however, they have been observed, examined and embedded in a discursive context in the fields of film and media studies, visual theory and the history of photography. But Flusser's basic point of view that insight into the special character of each of the various techno-images is only possible through knowledge of their respective production processes – modes of apparatus use and recording, hardware and software, mechanics and programming – remains a fruitful point of departure for further exploration. In this respect, his understanding of gestures as the movements of apparatus-operator complexes is informative. He characterises the apparatus-operator relationship in the first essay of his book *Kommunikologie* as follows:

The functions of the apparatus and the operator are melded together. It is then equally correct and incorrect to say that the photographer sees in the apparatus a tool for making an image out of a concept (viewpoint), just as it is both correct and incorrect to say that when making photos he sees himself as one of the functions of the apparatus, as a kind of delayed-action shutter release. (Flusser 1998a: 151 [transl.: CK])

With regard to the mode of recording – whether in photographing, filming or video – the apparatus-operator complex encompasses both the technical parameters of the apparatus and the design considerations which are inextricably linked to them and which might, e.g., follow the specific style of a period or connote conceptual ideas of the task of a techno-image, of a medium in general.

He [the photographer] is situated in a complex movement in which it would be pointless to differentiate between him and the apparatus. The decisions made during this movement are neither 'human' nor 'mechanical' but decisions made by the apparatus-operator complex. (Flusser 1998a: 184–185 [transl.: CK])

On the one hand, viewing medial gestures in this way opens the door on the interaction between computer-generated phenomena and their users, known as 'interface'. This relates to designs for the artistic and conceptual cooperation between apparatus and operator and the modes of use applied by means of governing the actions and perception of the operator.

On the other hand, this understanding of medial gestures immediately raises questions about the link between the modes of production and recording of various techno-images and aspects of their 'readability' or decoding. Gernot Grube, with reference to Boehm, has asserted that this consideration can be applied to image production in general:

The only possible way of knowing what an individual image means lies in knowing how it was made. [...] Boehm [...] works out that behind each image there is a rule. This rule behind the image is itself invisible but it 'guides' or 'steers' the organisation of the material (the colours, lines etc.) when it appears as an image. (Grube 2009: 214, 215 [transl.: CK])

Similarly, in my view, this understanding of medial gestures can be applied to explore a question of central importance for research into archival processes relating to performative arts: How are the recording processes themselves inscribed into the recorded material, as the transformation of the event, and how are they to be borne in mind when ‘decoding’ the recording?

### **Interfaces between apparatus and operator**

If gestures of producing techno-images are indistinguishable, complex movements between apparatus and operator (or user), as outlined above by Flusser’s observations on photography, an interface is necessary for the two to connect. In the case of analogue photography, the interface is the mechanisms for selecting setting parameters, the viewfinder and shutter release. The interface is a technical-material artefact linking the apparatus, of which it is part, directly with the body and sensory perception of the user/operator and allowing him/her to act. It is what makes the programme implemented via the apparatus usable in a purposeful way. The difference between both the programme and the apparatus and its handling in analogue and digital photography – despite the supposed similarity of the devices – has been pointed out by Manovich (Manovich 1996). These are aspects that Flusser was not yet able to take into consideration in his description of the gesture of photographing.<sup>3</sup>

With respect to human-computer interaction and developments toward increased miniaturisation, interfaces that allow the operation of the apparatus/computer to approximate human perception and their ergonomics are important aspects to explore. Information science defines the human-computer interface as “the languages, programmes, and devices which are available to the user for dealing with a data processing system, their presentation and user-friendly design” (Duden Informatik 2006, 600 [transl.: CK]).

As computers have become ubiquitous everyday objects that people carry around with them, concepts such as *tangible interfaces* and *embodied interaction* have emerged as new ways of connecting the apparatus and the operator. These are developed and designed specifically to emotionally involve the user and emphasise the fun element of usage, not only in the field of games.<sup>4</sup>

In his 1996 book, design theorist Gui Bonsiepe bases his entire concept of design on the term ‘interface’, as the composition of the relationship between user and artefact:

The question arises of how the three heterogeneous areas can be linked up – a body, a target of action, an instrument or artefact, or some information during the communicative action. The linking-up of these areas occurs through the interface. [...] Through the design of the interface, the user’s space of action is structured by products. The interface opens up the tool character of objects and the information content of data. Interface turns objects into products. Interface turns data into comprehensible information. Interface turns mere presence into Heidegger’s idea of ‘Zuhandenheit’ [ready-to-hand]. [...] In the case of tools, both material and immaterial (software), the task of design is precisely to bind the artefacts to the human

body. This process is described by the expression 'structural interlinking' (Maturana/Varela). (Bonsiepe 1996: 20; 26; 73 [transl.: CK])

Seen in this broader light, interface design is a very old problem: Every tool and instrument needs to be 'structurally interlinked' with an operator/actor.

If in the context of current design studies one speaks not only of handling and modes of usage but also of appropriation and reutilization<sup>5</sup>, a connection can be imagined with what Flusser considers to be possibilities for critical distance and reflection within the operator–apparatus relationship in *Toward a General Theory of Gestures*:

For what makes a movement a gesture is not that it is free but that a freedom is 'somehow' expressed in it. And 'somehow' means 'by means of some technology'. The technical application of a theory of gestures would not touch on the fact that a freedom expresses itself in the gesture but on how it expresses itself. Nevertheless, such an application would probably have far-reaching consequences for active being-in-the-world, for it would permit a gesticulating person to be theoretically aware of his gestures and so to draw back and away from them. (Flusser 2014: 175)

The 'how' is directly linked with the design, both in the sense of composition and artistic appropriation. In both fields, the design of the interface is fundamental to the link between operator and apparatus, whether it is, e.g., in that which is (or was) known as media art, or whether in connection with live performances of physical movements dealing with media arrangements.<sup>6</sup> Where medial gestures are concerned, performative artistic practices in this field always imply performance both in the sense of carrying out (of a programme, course of action implemented via an apparatus) and in the sense of enacting (showcasing the connection between apparatus and operator, playing with and against the apparatus).

### **Modes of recording and their inscription in the image**

As mentioned above, the second aspect that interests me about Flusser's concept of medial gestures is the question of how the process of producing "techno-images" is inscribed in the images. In this context, if we understand the artefacts in a potential archive of performative arts as the results of recording processes in which both technical, apparatus-related elements and aesthetic, discursive elements are involved, each according to the respective historical constellation, then we have to carefully 'read' these conditions relating to the artefact, the recorded material, which is the initial product held in the archive, along with the artefact. When so doing, we should place the focus on the respective medial modes of recording.

Flusser's description of the connection between apparatus and operator as movement chimes with considerations in the field of recording performances: How do movements in front of the camera relate to movements behind and with the camera? I have discussed this relationship in a previous text, citing such important photographers for early performance history as Peter Moore and Babette Mangolte (Büscher 2009). An additional aspect that I

considered then was whether one can regard the speed of shooting and the intuitive reaction of the photographer/camerawoman, as Babette Mangolte describes, as a variant of a simulated recording automatism.

Developing automatism in shooting photographs is not difficult. Essentially it relies on being very fast in setting up exposure, on focus and framing, and to dare to fail if you go too fast. You will get better at it over time, so speed is of the essence. My motto was: Shoot first and think later. (Mangolte 2009)

It seems appropriate to link a question like this with considerations of the historical procedure of automated recording, such as the chronophotography of Marey and Muybridge; or extend it to newer methods such as motion capturing (Gunning 2006). Such considerations, in turn, point to the new, digitally based recording procedure now known as 'image acquisition' (*Bildakquise*, Rothöhler 2013) which can switch between lens-captured and computer-generated formats, or is interested in the seamless melding of both modes (Rothöhler 2013, 40–49). An issue requiring substantiation is how Flusser's 'gesture of photographing' has been changed by digitalisation, e.g., with regard to the apparatus/programme-operator relationship and its requisite (physical) movements or with regard to the relationship between modes of recording and increased possibilities for post-processing.

Considering all the new possibilities for creating innovative spatial experiences with digitally based apparatuses, such as D3D films (Schröter 2009; Distelmeyer 2012) and fulldome films (Overschmidt 2013), two questions must be asked with respect to the recording of performances in a space: Which levels of spatial transformation do they open up? (Consider, e.g., the film *Pina* by Wim Wenders, premiered in 2011). And how are the specific (technical, apparatus-related) conditions of the recording inscribed in the relationship between the physical space and the image-space?

The mode of recording is only one of a number of configurations and transformation steps (in a conceptual sense) that one must take into account when deciphering techno-images as archival artefacts. Analogue and digital procedures for processing recordings, montage/editing and referential arrangement must be taken into account as well as historical, technical and design standards. A new set of questions arises from digital image production, especially with respect to the relationship between object/event and computer graphics/data record/image, which crucially affect the recordings' presentation of evidence – insofar as they are to be regarded as the documentation of past events. Martina Heßler, for instance, writes on the visualisation of sciences:

The thesis is that the issue of the references behind digital scientific images is highly complex; that neither simply stating the loss of a reference, the loss of the indexical, nor, conversely, claiming indexical status is viable. It is not easy to make a clear distinction between the indexical and the fictional image; on a general level the issue of this relationship is undecidable. (Heßler 2006, paragraph 20 [transl.: CK])

Instead, due to the various forms of operability that are possible, the digital images – i.e., the data records that are presented as images – open up a new understanding of “fluid access”, as described by Birgit Schneider below, since this “underside” of the images (Manovich 2001) can be used for other forms of surface presentation.

Digital images always perform a range of functions: They show visible phenomena or make the invisible visible; they visualise data records, dynamic processes and data structures; simulate physical phenomena, chart measurement data, tabulate, calculate, statistically evaluate. In the one case, they absorb the range of tools used in painting, in the next, the visual effects of photography or the optical physics of refraction, and in another, the entire field of diagrams and modelling. We encounter them as computer graphics, simulation, data visualisation and image generation. (Schneider 2009: 194 [transl.: CK])

The extent to which production procedures are inscribed in images and artefacts as medial gestures of technical, apparatus-related configurations remains to be explored in greater depth.

### **Recording as transformation and inscription**

The concept of, and discourse surrounding, the process of recording is closely linked to general questions of knowledge generation. Recordings form one of the basic pillars of scientific and artistic research. Recording is an element of the cultural techniques we use to preserve and itemise information. The activity of recording affects archival processes relating to performative arts in a very specific way: That which is performed and experienced is transformed via the media used for the recordings in such a way that it becomes communicable and accessible in a new and fluid way.

Recordings can precede a performance, in the form of directions, scores, concepts, collections of images and sounds, and/or they can be made during the performance, as a form of observation and accompaniment. For gaining insight into the evidential connections between various medial forms of recording and the events they refer to, the processes and activities involved in recording are of interest as well as the recorded results. This applies, e.g., to the modes of recording in photography and film, to image processing and compilation/montage as well as to the overlapping and interrelating of various processes, such as occurs in diagrammatics. Careful inquiry into when, why and with which techniques the recordings were made, and how they are made accessible, is essential for systemising archival processes. This also implies methodical reflection in the light of the discourse surrounding scientific theory and history, such as has been initiated in recent years by Bruno Latour (e.g. Latour 1990) and Hans-Jörg Rheinberger (Rheinberger 2001; 2005), among others. Studies on “experimental systems” in the natural sciences have demonstrated the

significance of recording apparatuses and technologies for generating knowledge and shown how they are inscribed in the results and their perception.

“Knowledge in the Making”, a research project initiated by the Max Planck Institute for the history of science in Berlin and the art historical institute in Florence, placed the question of the constitutive conditions of knowledge generation at the centre of its investigation, thereby forging a link between scientific and artistic recording practices. In this project, recording is conceived of as a process of describing, protocolling, collating, viewing and arranging observations, thoughts etc. in the media of writing and drawing.

Writing and drawing, it is fair to say, form the basis of a number of strategies, whose potential is not dependent on any particular type of science or knowledge. The whole repertoire of the ‘small tools of knowledge’ can be found everywhere. (Hoffmann 2008: 8 [transl.: CK])

In the introduction to the first volume of the project’s findings, Christoph Hoffmann explained the concept of the process as I also use it here – as clearly linked to the act of accomplishment, and accorded equal status to the result (Hoffmann 2008: 15). This publication can be regarded as the basis for the considerations presented here:

Writing and drawing not only preserve and transmit bodies of knowledge. They also open up certain possibilities for re-ordering experiences and considerations. Writing and drawing should, then, be understood as epistemological procedures, which participate in the development of objects of knowledge in the act of recording. (Hoffmann 2008: 8 [transl.: CK])

With this in mind, and thinking these two aspects – production procedures and interface design – together (along with others), Vilém Flusser’s reflections on medial gestures as the apparatus–operator complex can be fruitfully extended and applied to current research questions.

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<sup>1</sup> See Flusser, “Gestures”; also the following texts cited below: “Für eine Philosophie der Fotografie” and the afore-mentioned “Umbruch der menschlichen Beziehungen?”; also Flusser 1998a.

<sup>2</sup> Flusser writes in a short text of 1983: “There are photographers who consciously and purposefully act against the programme in their apparatus in order to force these programmes to put unforeseen things into the picture. [...] If one looks closer, however, it emerges that these photographers are not actually against the programme but against its automatism. They are playing with contingency. [...] They show that human freedom in the context of apparatus culture means playing with the programmes.” [transl.: CK] Vilém Flusser: “Für die Podiumsdiskussion meines Essays ‘Für eine Philosophie der Fotografie’ (1983)”. In: Flusser 1998b: 62; see also Ströhl 2009: 230 ff.

<sup>3</sup> On this point, see the following TV programme on Flusser and digital photography: Günter Hack (ORF): “Kampf zwischen Mensch und Programm”, 16.7.2012, at: <http://orf.at/stories/2130204/2087633/> (accessed: 7.1.2016).

<sup>4</sup> On such ideas and artistic conceptions, see e.g. Robben/Schelhowe 2012.

<sup>5</sup> On such conceptual considerations in design studies, see e.g.: Bredies 2012: 68 ff.

<sup>6</sup> Some years ago, I dealt in greater depth with the role and relevance of specific interface design in these two artistic fields (Büscher 2001).

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## References

- Bonsiepe, Gui. *Entwurfskultur und Gesellschaft. Gestaltung zwischen Zentrum und Peripherie*, Basel 2009.
- Bonsiepe, Gui. *Interface. Design neu begreifen*, Mannheim 1996.
- Bredies, Katharina. *Gebrauch als Design. Über eine unterschätzte Form der Gestaltung*, Bielefeld 2014.
- Büscher, Barbara. "(Interaktive) Interfaces und Performance. Strukturelle Aspekte der Kopplung von Live-Akteuren und medialen Bild/Räumen". In: *Maschinen, Medien, Performances. Theater an der Schnittstelle zu digitalen Welten*. Martina Leeker (ed.). Berlin 2001, p. 87–111.
- Büscher, Barbara. "Lost & Found. Archiving Performance". In: *MAP#1 Fluid Access* (2009), see: <http://www.perfomap.de/map1/ii.-archiv-praxis/lost-found-archiving-performance> (accessed 10.1.16).
- Claus, Volker (ed.): *Duden Informatik*, 4<sup>th</sup> edition, 2006.
- Distelmeyer, Jan (ed.): *Raumdeutung. Zur Wiederkehr des 3D-Films*, Bielefeld 2012.
- Flusser, Vilém. *Gestures*. Transl. by Nancy Ann Roth. Minneapolis, London 2014.
- Flusser, Vilém. *Into the Universe of Technical Images*. Transl. by Nancy Ann Roth, Minneapolis, London 2011.
- Flusser, Vilém. *Towards a Philosophy of Photography*. Transl. by Anthony Mathews, London 2000.
- Flusser, Vilém. "Umbruch der menschlichen Beziehungen?" (O: 1973/74). In: *Kommunikologie*. Stefan Bollmann and Edith Flusser (eds). Frankfurt/Main 1998a: 9–234.
- Flusser, Vilém. *Standpunkte. Texte zur Fotografie*. Ed. by Andreas Müller-Pohle. Göttingen 1998b.
- Grube, Gernot. "Die unsichtbare Rückseite der Bilder: Ihre verborgenen Herstellungsgeschichten". In: *Technobilder und Kommunikologie. Die Medientheorie Vilém Flussers*. Oliver Fahle, Michael Hanke and Andreas Ziemann (eds.). Berlin 2009: 197–220.
- Gunning, Tom. "Gollum and Golem: Special Effects and the Technology of Artificial Bodies". In: *From Hobbits to Hollywood*. Ernest Mathijs, Murray Pomerance (eds.). Amsterdam/ Berlin 2006: 319–350
- Heßler, Martina. "Von der doppelten Unsichtbarkeit digitaler Bilder". In: *Zeitenblicke* 3, 2006, [www.zeitenblicke.de/2006/3/Hessler/index](http://www.zeitenblicke.de/2006/3/Hessler/index) (last accessed 29.9.2015).
- Hoffmann, Christoph (ed.). *Daten sichern. Schreiben und Zeichnen als Verfahren der Aufzeichnung*. Zurich, Berlin 2008.
- Hoffmann, Christoph. "Festhalten. Bereitstellen. Verfahren der Aufzeichnung". In: Hoffmann 2008, 7–20.
- Latour, Bruno. "Drawing things together". In: Michael Lynch/Steve Wolgar (eds.): *Representation in Scientific Practice*, Cambridge/Mass., London 1990: 19–68.
- Manovich, Lev. *Language of New Media*. Cambridge/Mass. 2001.
- Manovich, Lev. "Die Paradoxien der digitalen Fotografie". In: *Fotografie nach der Fotografie*. Hubertus von Amelunxen (ed.). Exhibition catalogue, Dresden, Basel 1996: 58–66.

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- Overschmidt, Gordian (ed.): *Fullspace-Projektion. Mit dem 360°lab zum Holodeck*. Berlin 2013.
- Rheinberger, Hans-Jörg. *Experimentalsysteme und epistemische Dinge. Eine Geschichte der Proteinsynthese im Reagenzglas*. Göttingen 2001.
- Rheinberger, Hans-Jörg. *Epistemologie des Konkreten*. Frankfurt/Main 2005.
- Rothöhler, Simon. *High Definition. Digitale Filmästhetik*. Berlin 2013.
- Robben, Bernard and Heide Schelhowe (eds.). *Be-greifbare Interaktionen: der allgegenwärtige Computer; Touchscreens, Wearables, Tangibles and ubiquitous Computing*. Bielefeld 2012.
- Schneider, Birgit. "Wissenschaftsbilder zwischen digitaler Transformation und Manipulation. Einige Anmerkungen zur Diskussion des ‚digitalen Bildes‘". In: *Logik des Bildlichen. Zur Kritik der ikonischen Vernunft*. Martina Heßler and Dieter Mersch (eds.). Bielefeld 2009: 188–200.
- Schröter, Jens. *3D. Zur Geschichte, Theorie und Medienästhetik des technisch-transplanen Bildes*, München 2009.
- Ströhl, Andreas. *Die Geste Mensch. Vilém Flussers Kulturtheorie als kommunikationsphilosophischer Zukunftsentwurf*. Diss. Univ. Marburg 2009.