UNIVERSITY OF COPENHAGEN

Immediation (Cultures of Immediacy)

Liveness and immediacy in creative and everyday media praxis

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Immediation

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Abstract

21st-century media praxis is increasingly characterised by the emerging "cultural principle", "condition" or "culture of immediacy". The processes summarised under the term "immediation" suggest the closure of the spatio-temporal "gap" between the agencies and the media involved, resulting in a complex interplay of social, security, scientific and economic issues. The growing interest in immediation confirms its status as a new but as – yet – underestimated paradigm for the arts, sciences and humanities which calls for a future-focused inquiry into the cultures of immediacy.

However, in academic and popular discourse, the focus is on documenting either (societal) challenges or (technical) solutions. This paper seeks to address this imbalance by responding to the urgent need for a systematic understanding of the main ways in which immediation appears: firstly, today's worldwide closed-circuit arrangements; and secondly, live-streaming practices. It proposes an innovative combination of interdisciplinary perspectives and methods to discuss the options available to increase and enrich our understanding of immediation's potential for boosting an immense variety of societal applications. Such future-focused research into liveness and immediacy promises, in particular, to shed light onto, firstly, the concrete impacts

of creative closed-circuit arrangements on the emerging "domestication" of live streaming and, secondly, the actual measures that must be taken within emerging live streaming research to assess state-of-the-art R&D in the near future.

These issues are discussed for the purpose of opening up new routes towards future solutions for a sovereign and innovative usage of cultural techniques of immediation in creative and everyday media praxis.

Keywords

immediation, immediacy, liveness, live-streaming, instantaneity, closed-circuit, video, performance, remediation, media art, process art

Inmediación

Resumen

La práctica de los medios del siglo xxi *se caracteriza cada vez más por el «principio cultural», «condición» o cultura «de la inmediatez» emergentes. Este proceso, resumido en inglés bajo el término* immediation *(«inmediación»), sugiere el cierre de un «vacío» espaciotemporal entre las agencias y los medios implicados y da como resultado una interacción compleja entre cuestiones sociales, de seguridad, científicas y económicas. El interés creciente por esta inmediación confirma su estatus como paradigma nuevo, pero aún subestimado, de las artes, las ciencias y las humanidades, que requiere de una investigación centrada en el futuro de las culturas de la inmediatez.*

Sin embargo, en el discurso académico y popular, el interés reside en documentar o bien los retos (sociales) o bien las soluciones (técnicas). Este estudio pretende abordar este desequilibrio respondiendo a la necesidad urgente de una comprensión sistemática de las principales formas de aparición de esa inmediación: en primer lugar, las producciones actuales con sistemas de circuito cerrado en todo el mundo; y en segundo lugar, las prácticas de transmisión en directo. Se propone una combinación innovadora de perspectivas y métodos interdisciplinarios para tratar las opciones disponibles e incrementar y enriquecer la comprensión del potencial de la inmediación para así impulsar su inmensa variedad de aplicaciones sociales. La investigación futura así concebida de la inmediación y la retransmisión en directo promete, en concreto, responder a cuestiones sobre, en primer lugar, las repercusiones concretas de las producciones creativas realizadas con sistemas de circuito cerrado sobre la emergente «domesticación» de la retransmisión en directo, y, en segundo lugar, las medidas reales necesarias que hay que tomar dentro de la emergente investigación de la retransmisión en directo para evaluar la I+D más innovadora en un futuro próximo.

Se entiende que las cuestiones tratadas abrirán nuevos caminos para soluciones futuras encaminadas a un uso soberano e innovador de las técnicas culturales de la inmediación en la práctica de los medios creativos y cotidianos.

Palabras clave

inmediación, inmediatez, en directo, retransmisión en directo, instantaneidad, circuito cerrado, vídeo, performance*, remediación, arte de los medios, arte procesual*

Cultures of immediacy
The future of art research in liveness and immediacy: an introduction

The background and the idea of the study

21st-century creative and everyday media praxis is increasingly characterised by the emerging "cultural principle", "condition" or "culture of immediacy" (Tomlinson 2007). The presumed closure of the spatio-temporal "gap" between the agencies and media involved (Ihde 2002) includes a cluster of emerging cultural phenomena: the shift in differentiation between work and home life; the shift from possession and creation to the instant appropriation and re-creation of goods and services; the permanence of shopping hours, news coverage, public and private services and computer-related micro-performative behaviours. Growing interdisciplinary interest in these interrelated phenomena, which I cluster under the label *immediation,*[1] goes hand-in-hand with the apparently asymptotic co-evolutionary spiral of perceiving and producing the immediate media present. Today's complex interplay of social, security, scientific and economic issues calls for a future-focused inquiry into what deserves to be called the *culture of immediacy*.

However, research efforts devoted to aspects of immediation often confine their interest to the documentation of societal challenges or technical solutions. This paper seeks to address this imbalance by examining immediation in the all-encompassing context of contemporary cultures of immediacy. As such, it aims at an innovative and interdisciplinary exploration of the impact and implications of immediation for re-configuring future creative practices, media frameworks and cultural sensibilities and values.

Hypothesis and aim

In light of the above considerations, there is a pressing need to provide a new understanding of the risks and potentials involved in immediation to strengthen its immense variety of social and industrial applications as well as its sovereign and innovative usage. This central hypothesis of immediation's immense potential is theoretically justified by the claim that *immediation provides a new, shared, but as-yet-underestimated paradigm in arts, sciences and humanities as well as everyday practices.* There is an especially urgent need for a deeper and more systematic understanding of the main ways in which immediation appears – firstly, today's worldwide closed-circuit arrangements (fixed and mobile installations as well as wearables) and secondly, live-streaming practices – as

multifaceted backbones of present and future cultural, social and scientific innovation.

Methodology

Immediation's core creative, media and cultural features – closed circuit, liveness and immediacy – offer a detectable dialectics of narration and interaction, inscribed in the instantaneity of contact and the proxemics of the presence of others. The apparent effortlessness of communicating with one another via mobile devices (Tomlinson 2007) provides us with both the imagination and pressure to close the gap between here and there, now and then, and input and output, thus feeding back creative, cultural and media production in their consummation and vice versa.

This paper sketches a particular research field for which it is necessary to take the *first innovative methodological step* of integrating concepts from the disciplines of art history, comparative media and visual and cultural studies, as indicated in table 1. This cross-disciplinarity emerges (*ex negativo*) from the fact that neither a semiotics nor a phenomenology of immediation has been undertaken as an explicit or central research focus. As in the case of speed, a relative deficiency of explicit interest in immediation can be detected in such schools of thought as functionalism, structuralism, post-structuralism and Frankfurt School critical theory. The same applies to the phenomenological tradition of Heidegger, Sartre and Merleau-Ponty.

Within the social sciences, an early historiography of immediation (confined to "immediacy") has been put on the research agenda through the establishment of a "necessary relation" between "a new round of 'time-space compression' in the organisation of capitalism" and the "rise of postmodernist cultural forms" (Harvey 1990; Giddens 1990; Castells 1996; Tomlinson 1999). However, the "time-space compression" as manifested in contemporary creative and everyday media praxis remained underexposed, especially in relation to socially- and culturally-mediated economic practices, structural employment instability and common political rhetoric (Sennett 1992, 1998). While it constitutes the overriding cultural experience in the West and parts of the East today, this phenomenology of immediation is itself being placed on historiographical and metaphorical maps of (post)modernity as "fluidity" or "liquidity" (Bauman 2000, 2005; Urry 2000, 2003; Castells 1996).

A recent distinction between (modern) mechanical velocity and (contemporary) "immediacy" has drawn on socio-ontological interest in population mobility, the Internet and the apparent instability and

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1. The term 'immediation' is used in juridical jargon to mean a conflict-solving practice (when a third party exploits two other parties in conflict and takes advantage of the situation), which has possible unintentional implications for the economics and culture of '(i)mmediation' known from social media usage. 'Immediation' has been used explicitly as a special cinematic affect following Deleuze (Thain 2005) or in the context of perception and touch technologies (Zimmer and Jefferies 2007). Under the label "Immediations: Art, Media and Event", a research network partnership in Canada initiated as a successor of *SenseLab* (www.senselab.ca, directed by Erin Manning at Concordia University) "a laboratory for research-creation pairing art and philosophy".

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open-endedness of contemporary modernity (Tomlinson 2007, 76). Compared with the collective stories of mechanical speed throughout the modern period, it has been claimed that the immediacy of the 21st century lacks a compelling comparative narrative. A premise of this is that the emerging research field related to immediation – cultures of immediacy requires concrete case analysis within a set of general media, cultural-theoretical and methodological divergences and convergences (table 1).

The establishment of these methodological frameworks leads to *the second theoretical premise and innovative methodological step* presented in this paper: that emerging immediation – cultures of immediacy require concrete data-gathering and analysis, which are to be placed within a flexible, yet (on the level of key themes – as indicated in table 1) bottom-up set of general media and cultural-theoretical and methodological divergences and convergences (based on thousands of cases). Since there is no shared database or appraisal base upon which immediation's core creative, media and cultural features can be generally assessed, future research in liveness and immediacy will have to combine experimental and statistical as well as historiographic and qualitative methods that will provide some explanatory power for a "live" analysis of the content and contexts necessary to reveal the personal and societal effects of immediation.

The concept of immediation: main findings so far (preliminary conclusions)

1. The *concept* of *immediation* serves as an umbrella term for a number of emerging processes in 21st-century creative and everyday media praxis, which require a deeper and systematic understanding of what has thus far been summarised as a "cultural principle", "condition" or "culture of immediacy."

2. The *term immediation* suggests the assumed closure of the spatio-temporal "gap" between the agencies and the media involved, which includes a cluster of emerging cultural phenomena: a shift in the differentiation between work and home life, the shift from possession and creation to instant appropriation and the re-creation of goods and services, the permanence of shopping hours, news coverage, public and private services as well as computer-related micro-performative behaviours.

3. The *notion* of *immediation* aims to reach a systematic understanding of the processes underlying the aforementioned on-going closures of the spatio-temporal "gaps". From an innovative and interdisciplinary angle, it aims to capture and understand the impacts and implications of these processes for the re-configuration of future creative practices, media frameworks and cultural sensibilities and values.

4. The *growing interdisciplinary interest* in the interrelated phenomena of *immediation* matches the apparently asymptotic, co-evolutionary spiral of perceiving and producing the immediate media present. It confirms *immediation's relevance* with respect to the related

complex interplay of social, security, scientific and economic issues, and calls for a future-focused inquiry into what into what deserves to be called the *culture of immediacy*.

5. The *status* of *immediation* as a new and shared, but as-yet-underestimated paradigm for the arts, sciences and humanities is emerging out of the aforementioned growing interdisciplinary interest, which again calls for a future-focused inquiry into the cultures of immediacy.

6. The *structure and historization* of *immediation* fulfils the task of resolving the actual lack of a compelling comparative narrative for the 21st-century cultures of immediacy. It includes the systematisation and historization of the three major *aspects* of *immediation* related to: a) creative praxis (closed-circuit arrangements in the 21st century); b) media frameworks (liveness in televisual cultures: mirrors, frames, instantaneity); and c) cultural prospects (real-time engagement with live streaming technologies).

7. The *prospect* of *inquiry into immediation* lies in a deep and systematic understanding of the closures of intervals between performance and creative and everyday audiovisual practices as well as between the human and non-human agencies involved. An examination is made of: a) the "cultural technological change" between these two closures; and b) the "double logic of remediation" founded in hypermediacy and immediacy, with respect to today's status of immediation (methodologically, theoretically [respectively, performativity, authenticity, presence] and with respect to the historiography and current state of media and cultural practices and "processing" as well as "media-adequacy").

8. The *explanatory and predictive power* of the concept of *immediation* is designed to support the purpose of future sovereign and innovative creative and everyday media practices.

Theoretical suppositions and contribution in the literature

Three theoretical suppositions underpin this paper. The *first supposition* is that, in comparison with the collective stories of mechanical speed throughout the modern period, the 21st-century cultures of immediacy lack a comparative compelling narrative (Tomlinson 2007). This needs to be corrected by the establishment of an innovative and interdisciplinary framework of related *research areas,* which will enable a systematic analysis of the three *key themes* as displayed in table 1.

The *second supposition* is that neither human perception nor machine measurements deliver a sufficient epistemic model for assessing the preconditions and consequences of immediation. In addition, (radical) constructivist (Maturana, Varela, Riegas and Vetter 1990), media-materialistic (Kittler 1993) and post-humanistic ontologies and epistemologies (Haraway 1991a, 1991b; Hayles 1999, 2006) have not delivered sufficient explanation patterns for assessing what happens when a (human or non-human) agency "watches" or "measures" the outcomes of its own ([un]conscious)

immediate performance or behaviour (while probably changing it). The challenge posed by this alleged "bio-feedback" needs to be addressed through a careful re-examination of theories of cultural techniques with their shared assumption of a technological *a priori* (Siegert 2013; Macho 2013), on one hand, and those related to "hypermediacy", "immediacy" and "remediation", on the other (Bolter and Grusin 2000). We postulate that an agency- and media-adequate inquiry requires a double-strategy assessment that profits from these approaches and necessitates bottom-up checks from converging creative and everyday practices.

The *third supposition* is that the power to predict the next steps of immediation rests on the successful analysis of concrete cases, no matter how they are modelled (in the sense of "developed"). This can only be achieved when they are projected onto the foil of the converging *key themes*, as displayed in table 1. In our context, creative praxis and cultural prospects cover the key themes of contemporary closed-circuit experiments (representing "hardware") and live-streaming technologies (representing "software"), which are connected and framed with the media frameworks related to "liveness" and agency (representing "wetware"), described in the second theoretical supposition.

Structure

The structure of this paper has been conceived in close relation to my special research areas between 2006 and 2016: 1) *Process Arts*[2] (video, audio, installation and performance arts, as well as virtual and (hyper-)textual cultural practices): 2) *Visual Studies and Their Boundaries*; and 3) *Art-Based Research* (especially bio-art and bio-media), all with a particular focus on providing material and conceptual bridges between the hypothesis-proof methodology of the sciences, on one hand, and the allegedly 'heuristic' approach of the arts, on the other, from a 'micro-human' perspective.[3] The pioneering relevance and actuality of these research foci are congruent with the growing interdisciplinary interest in immediation and cultures of immediacy. They are expressed in a number of recent conferences and exhibitions, research networks and postgraduate, PhD and postdoctoral publications (Kholeif 2016; Cubitt and Thomas 2013; Chance 2012; Digicult et al. 2005).[4] This paper deals with current retro-analytical interest in the history of closed circuits (CC) (Herzogenrath 2015) and takes it as a point of departure for an innovative and interdisciplinary contextualisation of live-streaming practices as backbones of future cultural, social and scientific innovation.

What consequences has this state of being 'tuned-in' or 'checked-in' to the present have for the future of creative practices, media

frameworks and cultural sensibilities and values? The urgent need for a deeper and more systematic understanding of the major forms in which immediation appears requires the establishment of a preliminary interrelated set of relations between already collected content-related findings, theoretical suppositions and newly-extracted methodological presumptions. Together, the manifestations of immediation build the *key themes* which represent the structural backbone of the paper described in chapters and sections 1.1. to 3.3.

Key themes

Table 1. Immediation – theoretical presuppositions with methodological divergences and convergences

IMMEDIATION – CULTURES OF IMMEDIACY			
Research areas (methodological divergences)	**Key themes (methodological convergences)**		
	1. Closed circuit (creative praxis)	**2. Liveness (media frameworks)**	**3. Immediacy (cultural prospects)**
Historization and experimentation	1.1 Creative closed-circuit experiments in the 21st century	2.1 Process arts: media(tiza)tion and liveness	3.1 Televisual cultures: mirrors, frames, instantaneity
Analysis and synthesis	1.2 CC video and performance: liveness of (dis)embodied perception	2.2 Cultural techniques and technocultures	3.2 Live streaming technologies: immediacy of everyday media praxis
Contents and contexts	1.3 Arrangements: mapping the media fields of inquiry	2.3 Media technologies: ubiquitous (tele-)presence and dispensability	3.3 Media culture trajectories: remediation, hypermediation, immediation

1. Closed circuit (creative praxis)

1.1 Historiography of creative CC experiments in the 21st century

"The first icon of the 21st century is the closed-circuit surveillance camera" (Hawks 2005). The politics, economics and aesthetics of surveillance, tagging and control decisively affected the discourse

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2. The purpose of the term is to broaden the older term of (new) media art by including different tacit understandings.

3. 'Micro human' does not mean 'post-human' here, but takes non-human agencies (bacteria, for example; cf. our on-going Big Bacteria Research Network) explicitly and concretely into consideration as omnipresent tools for rethinking relations between the natural sciences, the humanities and the arts.

4. http://www.digicult.it/about/. Cf. also The Live Art Development Agency (http://www.thisisliveart.co.uk/) and Live Art Festival (http://www.fabrikanten.at/liveart).

around the so-called 'panoptical societies of Modernism' and, therefore, the agenda of arts, sciences and humanities over the past half-century (Orwell 1949; Foucault 1977 overview-exhibitions and conferences related to surveillance and control: LA, 1987; Cambridge, 1997; Karlsruhe, 2002; Stockholm, 2016). Today, fifty years after their introduction into the art world (1966), CC arrangements still constitute the formal-technical frames, slots or containers of performance, installation, audio, videographic and (hyper-)textual practices, labelled above as *process arts*. Moreover, CC arrangements and live streaming represent a field of contemporary creative practice that is incrementally growing and diversifying. CC designates a live (delayed, recorded or not) transmission of audiovisual signals from a direct ('CC') connection with the recording equipment.[5] For the recipient, the direct 'presence' of one's own live video footage is the most remarkable and, at the same time, the most disconcerting feature of this basic technology. Academic standpoints on CC reflect its historiographical relevance: in applying the term 'feedback' to live media art, some authors give the impression that the term applies only to those CC video installations that generate a feedback image (Schwarz 1997;[6] Donga 1998)[7] Others define the CC "teledynamic environment[s]" as the "only pure television art" (Youngblood 1970)[8] while others again have highlighted "self-

visibility", instantaneousness and televisual, deconstructive aesthetic as its most important characteristics, indicative of its artistic potential (Yalkut 1974).[9] "Tapeless" CC video installations have also been described as the "only interesting video art" (Kaprow, 1974).[10] At the beginning of the 1990s, attention was drawn to the fact that, since the 1970s, CC video had also become a dominant feature of daily life – whether as a means of surveillance in banks and public places or in the electronics trade.[11]

Aside from this varied range of conceptions, there is consensus about the 'primacy' of CC video installations and performances as far as the artistic application of the video medium is concerned (Frieling 1999[12]; Rush 1999[13]). An emphasis on the methods of CC video application 'appropriate' to the medium in the sense of real-time transmission has remained a recurring theme (Kahlen 1980; Krauss 1978f.),[14] seen also as "the perfect manifestation of the myth of avant-garde artistic practice", and "de-materialised artmaking" as an "explicit challenge to the hegemony of the modern museum" (Ross 1995, 433) – with the corresponding cult of instantaneous experience. Both instantaneity and site-specificity have been identified and simultaneously extended to cultural and anthropological spheres.[15] Over the course of the 1980s, a merging of the electronic 'eye' and 'brain' took place as video and the digital

5. As far as this paper is concerned, no defining difference needs to be drawn between audiovisual signals and data transmitted via cable or microwave or, indeed, any other means of broadcasting. What is key is whether the transmission is 'point-to-point' ([trans]local CC or Internet-mediated, etc., audiovisual telephony) or a one-way directed 'broadcast' or a live-stream to many reception points from a central point, which would conform to the concept of 'mass media' (both TV and online streaming channels). Between the two complementary usages of 'CC' and 'broadcasting', there are hybrids such as 'site casting' (scheduled to transmit over smaller distances), 'narrowcasting' or 'cablecasting' (referring to other short-distance network configurations) (Kacunko 2004; Auslander 2008). It can also be traced back to the early 1950s' definition of 'closed-circuit television'. In the glossary of a well-known book, which describes the history of the electronic camera of this period, the following definition is given, "CLOSED CIRCUIT. A television program not broadcast but confined to the studio. May be recorded if need be" (Abramson 1974, 200).

6. "Closed-circuit or feedback – term for an installation, in which the result of its production is simultaneously its point of departure, for instance, a camera, whose video image is filmed by a monitor" (Schwarz 1997, 187).

7. "Closed-Circuit – feedback, 'geschlossener Kreislauf'. Usually understood today as the feeding back of visual signals, particularly in video installations; term employed for the process of recording a monitor image with a camera, which has just produced that monitor image" (Donga 1998, 227).

8. "The self-feeding, self-imaging and environmental surveillance capabilities of closed-circuit television provide for some artists a means of engaging the phenomenon of communication and perception in a truly empirical fashion similar to scientific experimentation. This approach to the medium may in fact constitute the only pure television art, since the teleportation of encoded electronic-signal information is central to its aesthetics […]" (Youngblood 1970, 337-339).

9. "Video […] is able to convey in real-time an instantaneous simultaneity of events, which can merge man's inner and outer perceptions in a total Gestalt experience" (Yalkut 1974, 3).

10. "But in contrast, the closed-circuit, environmental videographers are trying to make use of what in the medium is not like film or other art. […] In the last analysis, environmental (tapeless) video, the kind whose only product is the heightening of consciousness and the enlargement of useful experience, seems to me the only interesting video art" (Kaprow 1974, 95).

11. The unity of time and space and of reality and image contributed to the "direct involvement of an individual viewer [which] can lead, in the complex technology of mass communication, to an individualisation in these art works of a single person" (Herzogenrath 1994, 11).

12. "The camera and monitor, as […] employed in closed circuit installation and performance, are considered to be the first (and thus emphatically the original) video-specific tools, […] only in second place comes their narrative relationship to film or television" (Frieling 1999, 12).

13. In reference to early video practice, M. Rush also laid stress on the difference between the 'immediacy' of closed circuit video installation and the application of pre-produced videotape: "For [...] early practitioners of video art [...] [it] was video's capacity for instantaneous transmission of image that […] was most appealing, in addition to its relative affordability [...] the spontaneity and instantaneity of video were crucial. Video recorded and revealed instant time, whereas film had to be treated and processed" (Rush 1999, 83–84).

14. "Only here in the face of the cult of the instant experience, which one wants to relate to us, does this process as such become clearer. This cult can only be justified, when we speak of video experience, which has been processed physically or mentally in closed circuit, and has been conveyed via that medium, the transmission of which has been reacted to by a participating individual. Thus a video performance or installation is appropriate to the medium only when it makes sensible use of the effects of perception" (Kahlen 1980, 11).

15. For example, the impact of CC video among the Yanomami Indians has been explored as well. "Video, as process or as instrument, impresses the Yanomami no more than an outboard motor, a shotgun, or a flashlight. From the point of view of the Indians, television is simply yet another thing that the 'strangers' make, as desirable as any other consumer goods […]. Closed-circuit or live television appeared to them no more surprising than a mirror, and the fact that the videotape requires no developing did not interest them, for the simple reason that they do not know about the cinema and its slow laboratory processing. The closed circuit and the freedom from processing, then, are advantages not inherent in video but rather in comparison with cinema; a catalysing process in our culture, but not in the Yanomami's" (Downey 1980, 5).

computer increasingly began to demonstrate combined possibilities that had, until then, barely been researched. Meanwhile, the significance of CC video technology for the construction of later VR, MR, ER, AR (virtual-, mixed-, enhanced- and augmented-reality) immersion spaces had not been forgotten (Morse 1998, 6-7; Ross 2005, 2006).[16] At the beginning of the 1990s, the CC arrangements proved a stumbling block on the way to a strict division between new computer-aided artworks and their respective precedents. The hidden presence and structural meaning of live-video cameras in computer-enhanced installations – the survival and production explosion of CC arrangements within "(new) interactive media art" – had to be conceded despite various classifications, including "interactive environments" and "interactive installations" (Dinkla 1997; Sakane 1989; Kacunko 2004a; Kwastek 2013; Seifert 2008). Demarcations could only be finally ensured by means of an inadmissible reduction of the former to its 'self-reflective' variants, ascribing a "mere self-mirroring of closed-circuit installations of the seventies" (cf. Dinkla 2001, 87; Dinkla 1997, 38-40;[17] Hünnekens 1997; Klotz 1997[18]). CC video technology was recently: a) ascribed a pioneering role in the history of today's interactive "multi-media" art (Huffman 1996, 203–204)[19]; b) designated as "the first generation of interactive media art" (Sakane 1989, 4)[20]; and c) related to intensification of bodily experience (Angerer 2001, 177, 182),[21] particularly relating to screen development without a radical break with the past. The "real-time screen" should be seen within the latter context as the output-side of the CC video system, whereby screen technology is explicitly introduced as a pre-requisite for VR, "telepresence" and "interactivity" with the "manipulation of real time" as the most remarkable feature of the "new media art" in general (Manovich 2001, 103, 94, 99).

The quoted definitions and remarks related to the role and significance of CC arrangements mark the historiographical lineage of today's digital media installations. Given the current phenomenon of exhibiting "old media art" and CCs (London, 1994 and 2002; Los Angeles, 1998; New York, 2001; Vienna, 2004; Madrid, 2006; Karlsruhe, 2007; Berlin, 2015; London, 2016 [*Electronic Superhighway* 2016–1966 at Whitechapel])[22]—*this gratifying curatorial trend now needs to be supplemented by the establishment of a substantially updated historiographical and theoretical infrastructure, which needs to be covered by a mapping of CCs in the 21st century and their strategic localisation within emerging creative, media and cultural frameworks.*

1.2. Closed-circuit video and performance: liveness of (dis)embodied perception

The role of CC and other related tele-technologies, including the metaphor and momentum of 'telepresence' (Kac 1992, 1993; Manovich, 2001; Novak 2001; Packer and Jordan 2001; Grau 2001), is regarded as constitutive of the "condition of immediacy" (Tomlinson 2007, 120). In particular, the (apparent) closure of the spatio-temporal "gap" between the agencies involved needs to be addressed with respect to the conditions of embodiment (Ihde 2002). This is the most challenging task: the dynamic relation between bodily presence and its live projection or screen footage requires close examination of the effects of CC technologies on the physicality and the concepts of representation in order to close this knowledge gap. This issue has recently been reapproached as the phenomenon of the "immediacy of screen images" and described as the "physicality of an image" (Chance 2012; Chatzichristodoulou and Zerihan 2009, 2012). So far, the related conceptions of immediacy, real time and duration in experiencing (CC) videos have been mostly examined by means of selected historical examples from previous decades. Not only have

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16. "It is television that first raises the problem of constructing full-fledged parallel visible worlds and linking them with our own […] More completely interactive and immersive technologies are not different in kind – they are simply better informed about where you physically are in material space and, we might add, social space [...] Ongoing surveillance by machines is then a corollary of the feedback of data from interaction with machines […]."

17. Annette Hünnekens also wrote about the "principle of closed circuit installation", which she discussed in the same breath as "database" work on videodisc. See Hünnekens 1997, 22; Kacunko 2004a.

18. The founding director of ZKM in Karlsruhe, Heinrich Klotz stated that "Attached to the history of video art is the parallel history of technical invention, such as, for instance, closed circuit installation, with which it became possible to incorporate the approaching viewer into the video image – at first with a slight delay, but before long in real time as well – such that the world of the art work could apparently be identified with the real space of the viewer" (Klotz 1997, 22).

19. "In the earliest actual practice, video was used in the same way as surveillance devices are today, it was employed to keep watch over and to observe reality […] This act – creating electronic territory and involving the viewer in it as a physical entity – is a direct predecessor to contemporary, interactive multimedia art, and immersive technology".

20. "It has become possible to instantaneously feedback the response from the viewers to the works thanks to video cameras, sound and optical sensors (detecting devices), interfaces giving access to information, and mostly to computers which enable high-speed data processing. The use of information engineering terms, such as 'feedback' and 'cybernetics', in the first generation interactive art emphasises the inclination of the artists in those days towards new technology".

21. "A review of the recent history of media art demonstrates, that especially in the field of video art […] – even at the end of the 70s – a focus was placed on the body in space, the body as space, the body and its ego lost in space […] I would suggest speaking about a new intensity in the experience of the body and beginning with the numerous examples in video and installation art, so that one can see the continuities and the new elements within this experience in the field of New Media Art".

22. See, for example, the exhibition "Mind Frames - Media Study at Buffalo 1973–1990" (ZKM Karlsruhe 2007) and "Art and the Moving Image, 1963–1986" (Museo Nacional Centro de Reina Sofia, 2006), as well as "Acting Out: The Body in Video, Then and Now" (Royal College of Art, 1994) and "Video Acts: Single Channel Works from the Collections of Pamela and Peter Kramlich and New Art Trust" P.S.1. New York and I.C.A. London 2002. Cf. also these exhibitions: "Into the Light: The Projected Image in American Art 1964–1977" at Whitney Museum of American Art (2001), "X-Screen: Film Installations and Actions in the 1960s and 1970s" at MUMOK Museum, Moderner Kunst Stiftung Ludwig Wien (2004) and "Out of Actions: Between Performance and the Object 1949–1979" at the Museum of Contemporary Art, Los Angeles (1998).

the earlier discussions related to what has been called the "electronic ontology of media" (Auslander 2008) and the alleged situation of 'virtualization vs embodiment' (disappearance, disembodiment, vanishing) (Ebsen 2013; Virilio 2009, 1991) reoccurred here implicitly; it also applies to the relationship between the body, (tele-)technology and "shrinkage" of the spatial distance, thereby questioning the status of "physical proximity" via "media proximity" (Virilio 1997; Baudrillard 1998; Cubitt 1991; Auslander 2008, 1999), which is also generalised in the theory of "proxemics" (Flusser 1991). Understood as relevant for a reconfiguration of human perception in the face of technological developments, several media and culture analytical approaches allow analogies with those about the aforementioned "time-space compression" from the social sciences (Harvey 1990). The recognised "reconfigurations" (Wagner 2000; Hansen 2004), however, require additional litmus tests on their explanatory power and generalisations. The focus of our investigation, therefore, needs a litmus test related to the proliferation of digital live-stream technologies in everyday praxis and the concrete impacts of 'liveness' on unprecedented emerging media-cultural and socioeconomic contexts. Moreover, this departure from the 'here and now' via an as-yet-unencoded "being both here and there" or "neither here nor there" (Mondloch 2010; Chance 2012) requires an inquiry into the concrete consequences of liveness of (dis)embodied perception and production at the same time. While the concern here cannot be widened either to the (historical) realm and specificities of the computer gaming industry *per se* or live projections in music performances, 3D performances and 'live cinema' within the theatre and performance studies (Auslander 2008; Finnäs 2001; Richardson 2012; Kelly 2007; Cook 2004; Kozel 2007; Sobchack 2004), the useful outcomes for the understanding of the "crucial epistemological break in the arena of viewer-screen interactions" (Mondloch 2010; Chance 2012, 10) will help in predicting the future of immediation via case studies of artistic, media and everyday 'tele-presence' and 'tele-action', including CC wearables and body devices as well as the related 'new performativity' (IEEE;[23] Wilde 2009; Mann[24]).[25] The convergence of (virtual) liveness and (real) bodily experience also needs to be mapped on the theoretical plane, which is another challenging part of this first key theme and project (apart from the approach to liveness from the perceptual-bodily perspective mentioned above): the challenge thrown up by the theoretical findings here lies in mapping and exposing the permanently developing theoretical accesses. The relevance of this key theme covered by the first project, however, is already congruent with some newer theoretical ('new philological') findings relevant to our approach: CC video has "meanwhile come to represent the reference medium for subsequent experiments in audiovisual and digital media", providing with its "structural openness […] a systematic contribution to the pluralisation of media" (Spielmann 2008, 10, 13).

1.3. Closed-circuit arrangements: mapping the media fields of inquiry

The displayed content-related categorisation of CC video installations (table 2) is derived from my mapping of the history of CCs up to the year 2000 (Kacunko 2004a, 2006, 2010, 2015) and based on thousands of historical examples, which makes it well-suited (at least, on a preliminary basis) to represent general 'fields of inquiry' related to CCs, liveness and immediacy. Since they still represent a gap in knowledge (also due to the lack of the systematization of a confusing number and variety of examples), they can be used as a conceptual framework applicable to the envisioned inquiry of the most significant tracking and streaming technologies as well as their potential for commercial and social innovation.

Table 2. CC video arrangements – fields of inquiry (Kacunko 2004a)

1. Subject-object relationship	Medium: mirror; metaphor: Narcissus; material: machine Vision
2. Constructions of reality	Reality and virtuality: fragment and superposition
	Reality and virtuality: model and construction
	Reality and virtuality: narration and interaction
3. System models and behavioural patterns	Silicon meets carbon: animal, human, robot and beyond
4. Game concepts and learning processes	Games – rules – learning: ludistic aspects of CC interaction
5. Data collection and monitoring	Watching of watching: media art between private and common space
6. Telecommunication	From slow-scan TV, closed-circuit TV and satellite To telerobotics via the Internet, wifi, mobiles, etc.

23. http://ieeexplore.ieee.org/.

24. http://wearcam.org/biowaw.htm. The third attempt to monetize VR technology (after the 1990s; for artistic examples from the 1960s–80s, cf. Kacunko 2004a) via Google Glass and 3D glasses belongs to this context as well.

25. One important aspect of the case studies contemplated is the convergence of the mutational nature of the digital visualisation transfer in direct telecommunications transmissions with technical and perceptual (bodily) breakdowns and disruptions in the context of "moving pictures' [,] 'de-screening and re-screening'" (Chance 2012, 176; cf. Kotz 2008; Dienst 1994; Massumi 2002).

The systematic categorisation of CCs by most recent examples and general development, therefore, remains an important task, the relevance of which cannot be overemphasised: the ongoing quantitative updates show that more than 50% of current Internet data traffic stems from the use of video while total digital video usage exceeded 91 % of global consumer data traffic in 2014; Internet video alone accounted for 57 % of all consumer Internet traffic in 2014 (Kaskade 2014). More concretely, strategically-posted CCTV cameras (CCTV is a television transmission system in which live or pre-recorded signals are sent as a closed loop to a group of receivers), camcorders and action camcorders (GoPro, etc.), webcams and IP (Internet protocol) cameras are becoming prevalent means of media coverage: while, in 2002, about 25 million CCTV cameras were in operation worldwide, there were almost 10 times more in 2014, with estimated growth of around 14 % from 2013–2017.[26]

Also, the qualitative, social, cultural and economic significance of CC and online live-streaming applications plays a key role in the intersection between art, science and technology.[27] In its contemporary digital form, CC video is one of the dominant cultural manifestations or means of expression. Video cameras have formed part of all manner of everyday technical devices for some time. Hence, live video can barely be conceived – at least, with respect to its 'casual' or 'vernacular' usage in smart phones (including 'front' and 'back' video cameras since the iPhone 4.2, 2010ff.) – as a separate medium nowadays since it always features in a media composition as an integral element in many forms of technical and cultural equipment.

Irrespective of CC video's meanings for art history, aesthetics and media theory, we are also currently confronted with the task of redefining its (inter)cultural significance.[28] Apart from the more general media and sociocultural angle (cf. part 3.), the project profits from my previous work on the quotability of CC/live arrangements, which – unlike in art history and other contexts that specialise in the description and *ekphrasis* of two- or three-dimensional "output only" devices (paintings, photographs, sculptures) (Kacunko 2004a, 2006;

Ross 1995) – always have at least three elements to be 'tagged' as an objectively quotable piece of information: input, output and their in-between (a "control unit", algorithmic or not) (Campbell 1996).[29]

2. Liveness (media frameworks)

2.1. Process arts: media(tiza)tion and liveness/presentism

The most common manifestations of liveness were often discussed in the context of the rapid delivery of mediated material through live media coverage with the aim of approximating an experienced 'presence' (Feuer 1983; Dayan and Katz 1992; Couldry 2004; McPherson 2006). Immediacy's technological, institutional and self-obscuring behaviour between liveness and mediation proved *ex negativo* "the rather illusive quality of 'liveness'" (Tomlinson 2007, 100). Immediacy's self-obscuring behaviour is understood as a general tendency of media to remain 'invisible' or to obscure their mediation. Today, this feature of immediacy meets the "normalcy" of "both the mediated and the non-mediated […] within our experience that we move between them with hardly any sense of changing gear" (Tomlinson 2007, 101; cf. Wiesel 2002). The everyday switching between these two modalities becomes quasi-'naturalised' in (for instance) everyday mobile phone usage, suggesting both technically and emotionally the famous closing of the (CC) gap between here/now and there/then. Projected onto the fragile foil of live performance, this apparent convergence of the unmediated and mediated in the 'immediated' has been confirmed in recognising the complementary – not binary – relationship between live and recorded modes of performance, leading to the conclusion that "though the defining mode of telecommunication may be digital, the quintessential mode of apprehension of mediated experience remains analogue" (Auslander 2008; Broadhurst and Machon 2006). While liveness in general was conceived as a historically contingent concept, the types of liveness mapped so far ("classic" liveness as physical co-presence, "live broadcast" as temporal simultaneity, "live

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26. https://technology.ihs.com/532501/245-million-video-surveillance-cameras-installed-globally-in-2014.

27. Originally considered as an emancipatory or ecological medium (Ryan 1992; Rosenbach 1982; Valie Export 2003) and viewed as a medium that occupied a 'temporary autonomous zone' between art and activism, CC video operates in the meantime on the terrain between semiotics ('video semiotics' [Iimura 2003]) and politics (CC systems, surveillance scenarios, 'cloaking devices'). Aside from its current use as a tagging technology, CC video is still regarded as the surveillance medium *par excellence* with a prominent position in the discourse linked to performativity (video dance, video theatre: Rosiny 1999; Polieri 2002). Its process-related nature is targeted, nevertheless, in the *hic et nunc*, and the role it has played historically and continues to play currently in the development of video games makes its cultural range especially clear.

28. It cannot be adequately described either as a "console of experimental media art" or as a "delivery service of virtual intercourse" – or even as an "archive of individual biographies" or a "cinematograph of the amateur" (Goddard) – it remains something more than the sum of its possible attributes (Adelmann et al. 2002). As a "mirror machine" (Marchessault 1995), CC video is not merely a medium that can create self-generating visual frames as a feedback. As a medium of speculative seeing and hearing (Kacunko 2012b, 2016), it remains a medium that continuously gives feed-forward and feedback in its discourse, thus re-generating it. It is particularly this comprehensive context that required appropriate and fresh theorising of video as a "reflexive medium" (Hornbacher 1985; Spielmann, 2005; Kacunko 2004) including its ubiquity in urban space (media facades [Sauter 2004]) and remotely-situated landscape web cameras (Hays 2012; Markonish 2008) and other forms of telepresence.

29. This quasi-cybernetic model sometimes supplements rather binary correlations between embodiment and virtuality, analogue and digital, continual and discrete, signal and data as they appear in various models of media materialism (Kittler 1999; Ekman 2013; cf. critics in Kroker 2001, 2014; Weibel 2000), including the dialectic of converting/decomposition (analogue principle) and transcribing/resolution (digital) (Binkley 1993). – In an independent development of hardware and software components in connection with 'visual interfaces' (live video cameras) since the 1980s/1990s, CC creative praxis offers arrangements and solutions with the advantages and inherent features of real-time, feedback-capable analogue and digital media to relate to each other. Contemporary media frameworks provide cultural prospects and the need for a better understanding of the future usage of instantaneity in daily life as well.

recording", "Internet liveness", "social liveness" and "website 'goes live' liveness"), with their corresponding characteristics and cultural forms, roughly designate the changing variables in the temporal and spatial co-presence of the agencies involved and, therefore, change the tacit understanding of live and mediated, real and recorded, present and represented (Auslander and Couldry, 2004). This 'de-constructive' approach to liveness confirms the requirement that liveness also needs to be examined within specific sociocultural contexts (Auslander 2008, 222). This widened usage of "mediatised" (performance) (Broadhurst 2006; Auslander 2008; Baudrillard 1998; Jameson 1991) stands at a critical distance to the spatio-temporal 'presentism' within theatre and performance studies (Phelan 1993; Fischer-Lichte 2008), the latter differentiating a liveness related to simultaneity and co-attendance, positing it as the necessary precondition, constructivistic-cybernetic or "autopoietic feedback-loop" while opening itself up to the aforementioned forms and modes of process art and their 'diachronic synchronicity' of enfolding the mediated 'now' and 'co-presence'.

This 'impasse' between the 'constructivistic' and 'essentialist' approaches to liveness under media and especially live-streaming conditions designates not only the political, disciplinary or methodological choices that mark our field of inquiry: this alleged 'impasse' has produced and still produces knowledge gaps that need

to be filled with a theoretical and methodological framework that departs from the ontology of televisual immediacy irrespective of its disciplinary context. Process art and CC video, in particular, appear as important, cumulative fields of creative audio-vision, which questions the status of the traditional 'image'. Since the second half of the 20th century, the coincidence of 'image' and 'liveness' has so radically altered our experience of time and space that a new term – "real time" – was coined to describe "an image existing in the present tense, parallel with unfolding experience" (Viola 2010; Jones 2006).[30]

The need for filling the methodological and theoretical gaps between 'presentism' and virtual 'constructivism' is also justified when 'presence' is regarded in the context of (the philosophy of) processuality. Although the latter does not provide the central focus of my project,[31] it must be mentioned that liveness and presence as essentially contested concepts have also been used as a theoretical framework for a historical examination of digital interactive art. It was understood as creative practices that merge traditional modes of performance and visual arts as well as liveness and presence. The modes of liveness are combined: (1) human-computer interaction; (2) "symbolic liveness" (situated within the diegetic realm); and (3) "technological liveness" (based on algorithmic processes), on one hand, and the modes of (technological) presence, on the other, based on the immediate accessibility or readiness for interaction

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30. The coincidence of 'image' and 'liveness' is just an element in a potential "real time" situation, which need not be seen as collapsing into an indeterminate unity: "For technophobes who blame technology for the collapse of the public sphere, liveness may be a last vestige of authenticity – seeing and/or hearing the event at the precise moment of its occurrence. The unmediated is the immediate. For technophiles, liveness defines technology's aspiration to simulate the real in real time" (Diller and Scofidio 2002).

31. The processual nature of the phenomena framed here raises additional questions and provides insights into larger epistemological processes and philosophical aspects of time. The assumed non-differentiability of the noumenal and the phenomenal as well as the real and the virtual (Deleuze 1985; Latour 1987, 1988, 1999, 2005) provides attempts to liquidate epistemology by dissolving representation, while being recurrently challenged by 'presence' and 'liveness' in their bodily and/or screen manifestations. The transcendental concept of con-temporaneity in which the present is increasingly characterised by an asymptotic co-presence of different 'now'(s) labelled as the "disjunctive unity of present times" (Osborne 2013, 17; Kwastek, 2013). This "archaeology of contemporaneity" seeks to establish a material conception of time and the con-temporary, initially referring to the Internet as the medium of contemporaneity *par excellence* and thereby connecting present contemporaneity to digital media and technological conditions, based on concepts of anachronism (Didi-Huberman 1999). This addresses one of the important unresolved issues facing the new realisms and materialisms, which seek to depart from the impasses in the thought of Husserl, Heidegger, Bergson, Sartre, Derrida and Deleuze. The central moment of temporality in their philosophical work called for a 'realistic' retro-analysis of the respective concepts and of contemporary cultural, artistic and scientific manifestations (Bryant et al. 2011, 17). However, it seems that the more recent theorists of speculative realism and materialism have also failed to theorise the implications of succession for their object-oriented perspectives. Between the two positions floats the increasingly theorised field of visual images and pictorial representation with comparable challenges when confronted with succession, process and temporality. What is still lacking is a reconsideration of image discourse with respect to the media and allied processes within the context of immediation (cultures of immediacy). Additional discussions about the 'present' in a post-hermeneutic context (epiphany, presentification, deixis) can be found especially in Gumbrecht (2003, 2014).

The concept of process art exhibits a more complicated relationship to process philosophy as it was conceived by Alfred North Whitehead (1861–1947) and to his "epochal theory of time", which the English philosopher and mathematician devised between 1925 and 1929. The concept of presentation as a subjective experience of what is perceived was countered by him with a concept of representation, which conveyed repetition in the form of an archetypal image relationship. Whitehead argued for the latter. The supposed impossibility of distinguishing between reality and fiction as a procedure alien to the nature of intuition (Croce 1930) was, thus, confirmed by Whitehead on a philosophical level. The ratio of the immediate experience of time, *"presentational immediacy"* as he puts it, is interrelated, I would argue, with the perception of process art. How, then, can this relationship be interpreted as a continuum of extensive relations, and how might they be made detectable by the senses and be reproducible for an outsider? Incidentally, this question addresses the decisive methodological claim that only reproducible subjects, objects and relations can be the subject of a scientific approach. I will seek to verify or reject the answer to this question in what follows, making reference to corresponding concepts and phenomena. Whitehead's notion of 'presentational immediacy' as discussed in his *Process and Reality* (1929) should be understood, within the context of the perception of process art, not as representation but as presentation. We are not dealing here with the reproduction of an image. What is perceived as an 'image' is shifted relative to its context. Hence, the term 'presentation' hints at what we call 'experience' while, for Whitehead, the latter always represents an emergent, 'creative' process, which reveals respective 'subjectivity'. It needs to be emphasised that neither Whitehead nor his contemporary adherents (Stengers, Shaviro, etc.) can be explicated here since the idea of art and culture as an expression of the inner self and similar concepts cannot be the foci of investigation. Harman, for instance, qualified Whitehead's process philosophy as comprising static instances. Likewise, neither can investigation deal with process art and philosophy in merging the thought of Whitehead and Deleuze, as Isabelle Stengers has proposed in her "cosmo-politic" plea for a "speculative constructivism" (Stengers 2008), or in the ensuing calls for a joint 'reading' of Whitehead and Deleuze, as proposed by Stephen Shaviro (Shaviro 2011).

(Kwastek 2013). This differentiation between the actuality of liveness and potentiality of presence in the context of interactive art reflects the aforementioned ambivalence between live and recorded and/or mediated, which is now located in hybrid practices of digital-based interaction. *In order to explain the emerging creative and everyday practices envisioned, future work in this field must found its conclusions on a wider base of cases, seen through an additional theoretical lens of human and technological interactions as representatives of human and machine agencies.* This is important in order to avoid the conclusion that the modes of liveness have already been well-defined and have therefore become unchallenged. By regarding liveness as a machine's responsive agency – a property not restricted to humans, diverse authors refused to draw rigid distinctions between non-human behavioural situations and human cultural ones (Auslander 2008;[32] Morse 1998; Hayles 2006, 1999; Davis 2011). They provide – by all the differences they represent – a specific line of thought that aims to induce (among other things) a co-evolutionary spiral of human and non-human consumption and production of the immediate media present.

2.2 Culture and technique; co-evolutionary paths of techniques and agencies (cultural techniques and technocultures)

Therefore, immediation is understood as the closure of intervals between performing and visual arts and, more generally, between production and consummation/contemplation. Between these two closures, the "cultural-technological change" (Tomlinson 2007, 80) between human and non-human agencies needs to be examined since, although widely discussed, this change still represents one of the most challenging tasks for the humanities and sciences. Projected onto the disciplinary foil, it became clear that the actual sciences are operating between the mechanisation of the living (paradigm: genetics) and the animation of technology (paradigm: cybernetics) (Kacunko 2015; Hauser 2016). The term *technoscience* (Latour 1987, 1988, 1999, 2005; Haraway 1991b; Hayles 1999; Costa and Philip 2008; Reichle 2009) describes this transformation in which the degree of equality between human and non-human actors has apparently transformed the alleged bifurcation between the 'two cultures' of the humanities and the natural sciences. The comprehensive historical and theoretical conceptualisations and mapping attempts between 'live' art and 'life' art (bio-art) had been placed in this context of an

emerging interdisciplinary discourse (cf. Weber 2003; Hauser 2003; Kacunko 2004a; Whitelaw 2004; Reichle 2005;).[33] The theoretical concept of cultural techniques that originated in Germany (Kittler 1993, 1999; Macho 2013; Siegert 2013; Krämer and Bredekamp 2003/13]) has recently been set in relation to other media-materialist and post-humanist research contexts from the English-speaking world (Haraway 1991a; Hayles 1999) in an attempt to "overcome certain biases and impasses […] associated with the work of the late Friedrich Kittler (Winthrop-Young 2013; Geoghegan 2013). The methodological potential of the nexus of cultural techniques (seen as a technical *a priori* of culture) and technocultures (with their similar but rather vernacular angle) has not yet been described and exemplified on the basis of a systematic body of cultural practices, which we regard as a growing knowledge gap that needs to be filled. In order to meet the challenge of accelerating change and to fill the permanent, growing gap between immense media production-consumption (of immersion) and its systematic reflection, the focus of future research in this area needs to be employed to describe the interactions between humans and the media and "to account for basic operations and differentiations that give rise to an array of conceptual and ontological entities which are said to constitute culture" (Winthrop-Young 2013). The cultures of immediacy in the sense so far introduced offer an exceptional, yet central 'case' on which McLuhan and 'reversed McLuhan' approaches to the primacy of humans or their used prosthesis and gadgets may serve to (dis) prove the applicability of the actual case studies in question. Especially within the humanities, research dedicated to the cultural techniques of (self-)observation offers a necessary supplement to research taking place in the sciences (microscopy, telescopy, diagnostics). Interdisciplinary initiatives reflect these needs and make them increasingly transparent for future research (Steiner and Veel 2015). The inquiry of media (art) studies into liveness is designed to close the corresponding gap between the immediacy of image and the image of immediacy. Some of the most important forays of the media artists and activists of the past two decades have consisted of explorations in this direction, constituting a trend in the 'Roaring 1990s' with a focus on 'invisible', 'natural', 'transparent' or 'intuitive' interfaces. While recent interface-focused research shows that the interest in the 'ubiquity' of digital technology, born out of a mostly military rationale, still attracts research programs (Wilson 2002; Pold and Andersen 2011; Pold and Hansen 2006; Sommerer and Mignonneau 1998,

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32. "What I am suggesting is that any distinctions need to derive from careful consideration of how the relationship between the live and the mediatized is articulated in particular cases, not from a set of assumptions that constructs liveness as an ontological condition rather than a historically mutable concept and the relation between live and mediatized representations a priori as a relation of essential opposition" (Auslander 2008, Kindle Location 1343).

33. These interests were accompanied by an avalanche of new scientific studies on the genetic basis of human behaviour (which brought Bateson's ecological aesthetics [Bateson] and the aesthetics of recursion back into play), questions related to the concepts of culture (Guddemi), representation and information as well as to links between complexity and cognition, consciousness and information, which appeared in both live and life-performing art as models and micro-systems best suited to an experimental approach to both vision and cognition. With respect to anthropology (Rappaport), molecular biology (Bruni) and semiotics (Pierce), the issues linked to the observer within real and mediated environments have opened enquiry into what Otto Rössler described in his *Endophysics* as an attempt to approach the observer question from the perspective of modern and quantum physics.

2001, 2008; Ekman 2013), in parallel research into the 'personal' usage of the same technologies (Shirky 2008; Lasén 2004), the rise of user-created content in social networking systems (Facebook, Cyworld, Xiaonei, Friendster, Bebo et al.) has sparked a new focus on "vernacular creativity" (Burgess 2007, 2008), authorship, labour-leisure and, particularly, intimacy-immediacy transformations.[34] *In order to close the emerging gaps of reflectiveness in this central field of contemporary experience, future research in this field should try to articulate recommendations for the future of sovereign and innovative media practices.* Conditioned by immediation through "participatory media" (Jenkins 2006), the merging of production and consumption in media-cultural practices provides recognisable patterns of behaviour from top-down industry and start-ups as well as user-created contents and contexts-patterns, however, which require the methodological scrutiny described above if the current heuristic technique is to be channelled into a more diagnostic and transformative direction.[35]

2.3. Media technologies: ubiquitous (tele)presence and dispensability

Within this context of our intimate and immediate involvement with tele-technologies, "we need to frame an analysis of immediacy in relation to the sphere of consumption" (Tomlinson 2007, 121). Closure of the gaps between desire, demand and delivery manifests itself first and foremost through ambivalences of telepresence and dispensability, centrality and peripherality, convenience and obligation. Again, these ambivalences represent the knowledge gaps that need to be addressed in concrete contemporary cases as proposed here. If performances arbitrate as commodity (Auslander 2008) then liveness may, in its indefiniteness, serve as an ultimate angle of solidarity with this commodity at the moment of the latter's fall. The centrality of re-enactments and restaging in creative and everyday media practice once more brings to the fore the methodological incompatibilities between the mediated and mass (re)produced (re-tweeted, etc.) *hic et nunc* (Goldberg 1979; Phelan 1993; Molderings 1984; Jones 2006; Jalving 2010; Sayre 1989; Fischer-Lichte 2008; Auslander 2008). This is also why the expressions for different

media-induced contemporalities prompted, in particular, by economic and communication processes, are sought and found in "media pervasiveness" (Goriunova 2012), "media ecologies" (Fuller 2005, Fuller and Goffrey 2012) and concurring concepts related to Internet Art (cf. early reviews by Greene 2004, Stallabrass 2003, Baumgärtel 2001, et. al.). These positions require a suitable theoretical and methodological framework as well as a case study as proposed here.

3. Instantaneity (cultural prospects)

3.1 Televisual cultures: mirrors, frames, instantaneity

The observed media frameworks of liveness in the televisual, artistic and performative context have indicated the increasing implication of electronic communications and media systems in the constitution of everyday experience. This "telemediatisation" of culture needs to be considered foremost among the factors that shape the cultures of immediacy. Although all kinds of "telemediated activities" such as watching TV, browsing, scrolling, clicking, texting, etc., belong to their scope, the focus of our investigation remains on the most relevant and wide-ranging audiovisual communication and surveillance tools and services. The 'domestication' of these emerging tools and their power to shape and even constitute experience will be surveyed with respect to their impact on the future (Kacunko 2004b). This televisual-induced "condition of immediacy" (Tomlinson 2007, 80, 96) includes a cluster of emerging cultural phenomena including the shifts mentioned at the beginning of the Section a, associated with a shift "from an effortful speed to an effortless mediated delivery" (Tomlinson 2007). These implications of immediation within production and consumption practices under the condition of their convergence, therefore, need to be explored at the moment of their very emergence – the need to fill this ever-growing gap of knowledge is the main purpose of our project as well as its main challenge. This applies to the increasing consumer and DIY market and the value of immediation in the sense of instant, ready-made solutions in creative and everyday practices.[36] The (inter-)related phenomena and concepts of frames, mirrors, and (audio)visual 'instantaneity' may be regarded as blind

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34. The immediacy relationship between the personal, private and public is being established and dominated by "affective technologies"; whereas research interest focuses either on the human agencies or the technology (Shirky 2008). The popular re-mediations of older media practices in the digital networked realm (*renga* [networked poem performing / writing], *keitai shōsetsu* [mobile phone novels]; Kacunko 2009; Hjorth 2009) made their movement from artistic to more popular contexts (and vice versa) but not without making an impact on twenty-first-century paradigms for creative practice and labour. Within the context of technocultures (Latour 1987, 1999; Fuller 2005), a diversity of creative and everyday practices seems to "contest didactic models of the digital divide in terms of the haves and the have-nots. Indeed, within twenty-first century techno-cultures we are seeing new forms of work and class paradigms in which the 'have-less' increasingly become the norm" (Hjorth 2009).

35. Nevertheless, the rather descriptive designations such as, for example, "playbour" (Kücklich 2005), "prod-user" (Bruns 2007), "prosumer" (Toffler 1980), "vuser" (Rogala 2000) require more ambitious conceptualizations of immediation in the state of its very becoming. (cf. 3.1)

36. The status of the electronic 'image' with its absence of memory and its principal indistinctiveness between the live and the recorded influences the aforementioned processes directly and decisively (Heath and Skirrow 1977; Cavell 1982). The fact that they occur, act, or accomplish something without loss or interval of time and their relatedness to the immediate past / here and now busy users and strategists too much with immediate concerns to worry about the (near) future consequences. And this, again, requires additional investigation into the convergence of the cultural techniques of immersion and reflection.

spots of visual culture's cornerstones, 'visuality' and 'visibility',[37] calling for a 'televisual culture' supplement. The project needs to take the semantics of dissolution related to the mirrors as a point of departure for a discussion about the 'image' within a pragmatics of performativity (table 3).

Table 3. Televisual culture's core areas as visual culture's threefold delimitations (Kacunko 2015)

FRAMINGS	MIRRORS	INSTANTANEITY
Describing diachrony	Comprehending the conceptual	of image/image of instantaneity
Visibility, visuality and narration	Materiality and conceptualisation	Here and now
Syntax of Dynamisation	Semantics of dissolution	Pragmatics of performativity

Since the mirror in its seemingly paradoxical function as an "asemiotic sign" or "rigid designator" (Foucault 1972, 1977; Eco 1988; Kripke 1980) seems ill-suited as an agent for the 'signifying practices' in the representation context of cultural studies (Evans and Hall 1999), the question arises: how should this unsuitability of the mirror be explained when one is reminded of today's electronic self-reflection and extrinsic reflection via mobile phones (*selfies,* etc.)? On the other hand, it must be acknowledged that the delineation attempts related to mirrors and images apply to those of frames and images as well (Friedberg 2009).[38] It is fair to say, specifically with process arts in mind, that greater and wider attention to and assessment of the spatio-temporal and audiovisual dimensions of framings are crucial if we hope to do justice to recurring and emerging case studies.[39] Our objective to gain a greater understanding of immediation at the place and time of its very emergence needs to be matched by applying (and developing) theoretical and methodological frameworks directly to the central contemporary cases of immediation, which are summarised in the next section 3.2.

3.2. Live-streaming technologies: the instantaneity of live tracking and measuring, productiveness and receptiveness

The Internet has fundamentally changed the realities of the distribution of knowledge and dealing with everyday practices as well as cultural heritage. In the age of analogue perception and digital processing, the process arts have become a significant part of networked societies. The videographic, audio, installation and performance arts, as well as hypermedia cultural practices (all kinds of Internet-generated 'material', including live and interactive events), have become omnipresent even as they increasingly interpenetrate each other.[40]

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37. The following chronologically-ordered readers and critical comments include additional primary literature and early texts (quoted elaborately in Kacunko 2015): Fausing and Larsen 1980; Bryson, Holly and Moxey 1991; Jay 1993, 1998; Jenks 1995; Cartwright 1995; Jay and Brennan 1996; Bird et al. 1996; Burgin 1996; Davis 1996; Foster 1998; Elkins 2003; IMAGE 2005f.; Grau and Veigl 2011; Rimmele and Stiegler 2013; Walker and Chaplin 1997; Hall 1997; Mirzoeff 1998 Barnard 1998; Heywood and Sandywell 1999; Doy 2000; Jensen et al. 2000; Jacobs 2001; Barnard 2001; Sturken and Cartwright 2001; Carson and Pajaczkowska, 2001; Holly and Moxey 2002; Jones 2003; Crouch and Lübbren, 2003; Dikovitskaya 2005; Rampley 2005; Van Eck and Winters 2005; Kacunko and Leach, 2006; Von Falkenhausen 2007; Davis 2011; Sachs-Hombach and Schirra 2013; Rimmele et al. 2014.

38. The frame-image relationship appears especially in the context of the informative and instrumental aetiology of images. In particular, this relationship contains the possibility of generalisation that recognises a secularising or religious or magical function of the frames, and even their presumed constitutive role in creating an 'artwork' (Bredekamp 2010, 2013; Belting et al. 2013). – The technological and institutional (professional/stylistic) qualities of liveness mentioned (2.1) feed here into the "third and most general sense", one "in which media obscure their mediation", that "telemediated experience [which] now inextricably intertwines with direct experience in the 'flow' of everyday life" (Tomlinson 2007, 100). To give a stored image a conceptual frame will, under conditions of immediation, be possible only within an exegesis that addresses eye and ear and/or eye and touch, so that the 'image' now appears either as a frozen potential of performance or as synaesthesia gone mute. It stands in contrast with the mirror, which assumes the status of a medium facility or meta-medium of visual transference, which encounters its only media and operative limitation within the analogue or digital repository media.

39. Since the material and the implicit media qualities of frames and framings lead beyond both 'visibility' and 'visuality', both emergence and perpetuation of the 'frame flow' (ergodicity) must pose questions – in particular, as to increment and process. It is striking that attempts to adopt for process art the technique of conceptual transfer, habitual in the linguistic and diachronic realm, seem to retain earlier synaesthetic ambivalence without resolving questions past or present that arise from the specifics of the medium at hand. Given the core media quality of videographic immediacy, that omission seems all the more surprising. – The present aim in reconsidering framings within the media and diachronic contexts outlined is not to reiterate known conclusions reached by media and art history studies (Spielmann 2005; Kacunko 2004, 2016; Frohne 2008) or those drawn from High Modernism (Greenberg et al.) in respect of media specificity. Instead it is *to envision the framings performed between media and the agencies employed.* – To explore the audiovisual spatial and temporal frames means shifting the focus, as it were, from ideal or implicit beholders (Kemp 1992, 20) and their supposed intuitive Kantian and, later, 'intersubjective' states of mind and to investigate automatic and habituated 'self-generated' frames by considering 'explicit' and 'interobjective', i.e., describable and communicable frames of reference (Hrubeš 2008).

40. At the same time, notions such as the 'performativity of archives' or the 'archive as an event' reflect another reciprocity: that we experience the world as a narrative while, from the perspective of digital ontology, the so-called new media objects (DVDs, Blu-ray discs, etc.) can no longer be regarded as narratives like a novel or cinema since they are just databases organized by algorithms, as has been claimed since the mid-nineties (Manovich 1997, 2001). Regarding this apparent contradiction, we are very well aware of the need to organise our digitised data properly according to non-recursive rules. From the digital perspective, this is how to get the added value produced by the cross-reference possibilities of (for instance) relational databases. Meanwhile, we need to organise all kinds of computerised –increasingly, live-streaming – collections according to our analogue (sensual, aesthetic) experience, particularly when we need to reflect and understand how this experience is being structured anew in everyday processes and the material world around us. The keyword 'Performing Archives' delivers an important cross-reference to the concept, which has been performed and reflected by different members of the Institute of Arts and Cultural Studies at the University of Copenhagen. In 2008, a former faculty member of the Department for Art and Cultural Studies (IKK), Solveig Gade, received the Routlege Prize in the context of Psi (Performance Studies International), a professional association founded in 1997 to promote communication and exchange among scholars and practitioners working in the field of performance. In the spring of 2009, Solveig Gade established an informal study group, *Performing Archives.* The project focused on the archive as both visual databases and structural systems contributing

No matter which way the supporting policy on the local, national and international levels may go in the future, the present state of affairs shows unmistakably that the fields of expertise linked to the diversity of live-streaming arts and everyday practices belong to the key performance indicators of current research. The individuality, marketability and technological efficiency of current media production and consumption are (critically) regarded as the main characteristics of "hypermodernity" (Lipovetsky 2005). Understood as the successor of a rebellious, hedonistic "presentism" (which itself replaced the original counter-cultural celebration of *carpe diem*), this "second generation presentism" is, in contrast, driven by personal performance and haunted by various uncertainties regarding the future. Manifested in hyper-consumption and framed by "hypercontrol" (Bogard 1996), the promise of a euphoric present – indeed, the pre-eminence of the present – constitutes the "prosumer's" ecosphere today (cf. 2.2). Neither the rhetoric nor the matter-of-factness of the quoted media and cultural context shifts alone possess the explanatory power to predict the future fusion of programmed and live content in their creative and personal use. This is why the context of instant audiovisual (tele)communication as obligation and as convenience needs to be examined in the context of individual 'tuning' and 'checking in' with 'significant others' – seen from a critical (Lipovetsky 2005, Groys 2005, Bauman 2005) and rather conciliatory perspective (Tomlinson 2007).

Therefore, the mapping of contemporary CC video arrangements (1.1–1.3) needs to be complemented with a mapping and analysis of current and emerging live-streaming apps used in everyday practices. The top social networks for real-time engagement (Meerkat, Google: You Tube Connect, Facebook: WhatsApp/Facebook Live/Instagram, Microsoft: Skype/Windows Live Messenger, Twitter: Periscope/Vine, Yahoo! Messenger, Amazon: Twitch) are experiencing a dynamic development within the context of the growing number and variety of developing instant messaging clients with an audiovisual streaming function (including Snapchat, aMSN, Ayttm, Ebuddy, Empathy, Gajim, IBM Lotus Sametime, ICQ, Jitsi, Kopete, Messages, Miranda IM, Patalk, Pidgin, QuteCom, Tencent QQ, Tox, Trillian, Wickr).[41] The emerging fields of usage, such as footage shot from drone videos (Lind and Rankin, 2015), need to be included in this mapping, which is itself supposed to simultaneously remap previously formulated fields of inquiry into CC video arrangements[42] (1.3).

This future project also needs to contextualise streaming, server-based apps-environments and related behaviours with the simple software webserver as well as live streaming and peer-to-peer (P2P) technologies (video-conferencing, integrated solutions from Microsoft, Adobe, Real or Emulive). Streaming media technologies (Flash Video Streaming, FLAC, MP3, MP4, Nullsoft Streaming Video, Ogg, QuickTime, RealMedia, Windows Media) will be regarded in the context of the streaming software and server (Catra Streaming Platform, Darwin Streaming Server/QuickTime Streaming Server, FFserver, Helix Server et al. and free/open-source software such as Icecast2, Jinzora Broadcast-Serversoftware, LSCube/Feng MediaTomb, VideoLAN Server, Wirecast, etc.) and the important streaming codecs such as Apple's Quicktime, Microsoft's WMA, ASF, Real Networks' Real Audio and RealVideo codecs. In a limited range (due to ongoing international negotiations and standards), emerging (not historical) legal questions need to be considered as well.

Finally, future research would need to contextualise the emerging research within the field of immediation itself to envision the state of the art of R&D in 2020–2030. One focus should be set on one of the Internet's fastest growing trends, called "Deepstream".[43] In its initially

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to the renewal of ontological approaches to performance studies and visual culture. A particularly important aspect of this research concerned the institutional and political structure provided for culture and art to develop within. This seems to have created some momentum: the same year saw the appearance of Simone Osthoff's case study, *Performing the Archive* (Osthoff 2009), and an exhibition bearing the title, *Performing the Archive*, which presented what were at that time innovative space- and time-based interfaces as access to online media art archives, Netzspannung.org – Performing the Archive (since 2007) [http://www.netzspannung.org]. More about these contexts may be found in the full text online reader *Sustainable Archiving of Born-Digital Cultural Content* at: http://issuu.com/virtueelplatform/docs/archive2020_def_single_page.

41. A comparative investigation has been scheduled of interfaces, features and functionalities (contextualisation of live feeds/tagging and localisability, scheduling, on-air notice, gamification, viewer feedback, GPS features, replay, etc.), emerging indicators of level of active user/growth in user engagement on iOS and Android devices (in the case of Periscope, a nearly 200% increase in 'time watched' from 40 years to 110 years in a period of seven months indicates the growing popularity of the platform) and the monetisation strategies in relation to the rapidly intensifying competition and ongoing developing expectations in the field of business (a survey from Cowen and Company, published in Q1 2016, estimates that US digital video ad spending, at $9.9 billion in 2016, will reach $28.1 billion in 2020 [also producing live streaming video events]).

42. In a range limited to the emerging contexts of locative media and (aspects of) distributed computing (from service-oriented architectures (or SOA-based systems) to multiplayer online games and peer-to-peer applications), the mapping and analysis relevant to immediation in the respective contexts will also be supplemented.

43. For anybody who is tuning into live streams, the major challenges lie today in: (1) finding the contextual information around particular events and topics; and (2) aggregating the content search for other live streaming services. These problems represent a continuation of both artistic-creative and everyday online audiovisual contents within the context of text-based research engines and (mainly closed) online (media) art archives and repositories. PI's approach to the archives and databases of media art goes back to the early 2000s when many researchers all around the world, working along parallel tracks, invested a substantial amount of hope, work, and resources to give a practical answer to the described need. A short list of the attempted projects includes: Ars Publica, Archiving the Avant Guarde, Furtherfield, ArtNine, Art-Place-Technology (Archives), Culturebase.net, E-artcasting, Datenbank der Virtuellen Kunst, New Radio and Performing Arts Inc. (NRPA), Digitalcraft.org, DigiArts (UNESCO portal for Media Art), medien.kunst.tirol, Runme.org, Netzspannung.org, Institute for Distributed Creativity (IDC), Intute: Arts and Humanities, Die Patinnen e. V., Medien Kunst Netz, ACT, Curatorial Network, KUNSTNETZ NRW, tesla, Nettime, The low-fi Net Art Locator, Ljubljana digital media lab (Ljudmila), Video Data Bank, Video Art Denmark, Vektor, Inside Installations, Variable Media Network, Run Me, Heure Exquise, Gallery 9, Turbulence, Web3Dart, Foundation Daniel Langlois/CR+D Database, Whitney Artport, Electronic Arts Intermix, Digital Curation Centre (DCC), Curatorial Resource for Upstart Media Bliss (CRUMB), Digital Game Archive, Cinovid, Museum 2.0, NetBehavior – A Networked Artists Community, PORT: Navigating Digital Culture, Capturing Unstable Media/V2, CACHe, Ars Electronica Archive, Media Matters

artnodes

launched research and education context (MIT's Center for Civic Media at the Media Lab: "Deepstreams are livestreams that people have enhanced with great content like images, tweets, and news stories"), the "Deepstream" focus also promises methodological openings when related to some specific problems of live-stream experiences, when users attempt to get involved contextually with actual live content by trying to second-screen a live stream (i.e., opening up browser tabs or checking the related Twitter feed, etc.) – a phenomenon that can be regarded as an important emerging form of "hypermediacy" – a collage-like (de)composition of images, footages and experiences (Bolter and Grusin 2000; Ekman 2013; Hauser 2016).[44]

The live streaming practices correspond to the three key features of the condition of immediacy: ubiquity, effortlessness and speed, which affect the space and time closure of the gap between events and their media representations, providing the models for broader assumptions of instant and 'effortlessly' achieved delivery and feedback (Tomlinson 2007, 131, 142). Many of the features of live streaming build a case that the chosen mapping fields of contemporary practices work well as a model for a broader investigation into immediation, while the latter requires a re-contextualisation within the trajectories of media cultures.

3.3. Media cultures' trajectories: telemedisation, remediation, hypermediation, immediation

The wider context of "hypermodernity", discussed mainly within the social sciences (Lipovetsky 2005), has been partially discussed within the confined media culture context by using the concepts of hypermediacy, immediacy and remediation, although these are self-restricted in their explanatory reach as "practices of specific groups at specific times" (Bolter and Grusin 2000). Future inquiry should aim at reframing these concepts and the actual content they cover. While the two proposed cases – current creative CC audiovisual arrangements and everyday streaming practices – serve well to illustrate the assumed 'fluid' relations between 'old' and 'new' media (like the remediation of 'new media' by 'old media'

and vice versa [Vanderbeeken 2011]), it seems (at this preparatory stage of investigation) that both the proposed features of and relationships between immediacy, hypermediacy and remediation offer alternative conclusions due to the apparent narrowing-down of the focus, supplemental methodology and the actuality of the cases in question. The "logic of transparent immediacy" has been regarded in the context of the development in the 1990s of immersive VR applications, (invisible) interface research (Sommerer and Mignoneau, 2008; Fleischman and Strauss 2008) and "interface criticism" (Pold 2006, 2011; Bodil Thomsen[45]) as well as the promise of "disappearing the medium", "interfaceless" interfaces (Bolter and Grusin 2000) or the "invisibility of the medium" (3.1). The elements of collaging the contents have been linked to "hypermedia" practices ("windowed-style" fragmentation, indeterminacy and heterogeneity), "suggesting an 'end' found in the principle of "remediation". The focus, however, was set (if not restricted) relatively clearly to the brand-actual "immediacy in computer graphics" and its means for "achieving immediacy", meaning the achievement of (re-)presentational goals in different (art) media. In effect, the "remediation" principle and its practices come quite close to what are best known in the context of digital gaming (but also in installation and Internet art archiving and museum and exhibitions) as 'emulation' practices (Kuni 2006 Leach 2006; Spielmann, 2005/8). This "double logic of remediation", founded in hypermediacy and immediacy (Bolter and Grusin 2000) needs – especially with today's (status of) immediation and its required definition updates – to be revisited methodologically, theoretically (with respect to performativity, authenticity, presence) and with respect to the historiography and current state of media and cultural practices and "processing" as well as "media-adequacy" (Knaller 2006; Winkler 2015; Hauser 2016). Understood as "transformation imagery", CC/ (live) video "denotes the transition to the digital simulation image" and, as a "reflexive medium", it "produces transformative forms of pictoriality, but no images… [With its] media-specific features of processuality and transformativity, [it] is effectively predestined to play a decisive role in the intermedia context of computers' development – and of the more complex hypermedia" (Spielmann 2008, 4, 5, 6). As

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-Tate Gallery ArtDeCom, MuSe, Bildrausch, CCS BArd, Artnetweb, Electronic Literature Organisation (ELO), Netzwerk Mediatheken, Eyebeam, Arbeitskreis Filmbibliotheken, Stunned. org, NewmediaFIX, Post media Network, FWU Institut für Film und Bild in Wissenschaft und Unterricht gGmbH, Generator.x, Institute of Network Cultures, LX 2.0 – Lisboa 20 Arte Contemporanea, Curating Degree Zero Archive, House of Technology TErmed Praxis (HTTP), Deutsches Rundfunkarchiv, Curating.info, Curating NetArt, Digicult, Tate Net Art, Haus des Dokumentarfilms, Zentrum für Kunst und Medientechnologie (ZKM), Tactical Museum Tokyo, Dutch Electronic Art Festival (DEAF), Medienrezeption.de, The Western Front: Media Arts, DiaCenter: Artists' Web Projects, Akustische-Medien.de, The Escape Artists Society (TEAS), The Thing, Zentrum für interaktive Medien (ZIM), CCA Wattis Institute for Contemporary Arts, Institut für neue Medien (INM), The Rose Goldsen Archive of New Media Art, Aktive Archive, Cultura 21, Nomads + Residents, c3 Center for Culture and Communication, The Netherlands Media Art Institute, Foro artistico, Artservis, DAM Digital Art Museum, CIANT International Centre for Art and New Technologies, Trace Archive, Assemblage, Ludwig Boltzmann Institut Medien.Kunst.Forschung, The New Media Encyclopedia, Rhizome.org, Art Service Association (ASA), Perforum, Bildwechsel, The Danish Video Data Bank, AV-arkki, netart-Datenbank, Kulturdatenbank, Medien Kunst Archiv Wien, mediafiles.at, Web Net Museum […].

44. While Twitter and Periscope are working on a real-time, live-stream scanning algorithm in order to identify what is happening in live broadcasts with the help of *Twitter's Cortex*, it is being recognised that there is an enormous potential in analysis and experimentation with ways to categorise and identify content in live broadcasts.
    http://www.govtech.com/internet/MIT-Research-Project-Aims-to-Corral-Enrich-Live-Streaming-Video.html,
    http://thenextweb.com/apps/2016/05/12/twitter-periscope-real-time-video-scannning/#gref.

45. Project Title: *Affects, Interfaces, Events*. Aarhus University 2015f.

such, the focus of the investigations approaches linear "multimedia" discourse (Kaye 2007) and practices within the hypertext-extension context of nonlinear "hypermedia" and opens up the discursive and historical space to immediation.[46]

Conclusions

This paper has taken the following set of questions as general guidance:

I. What consequences follow from being permanently 'tuned-in' or 'checked-in' to the present for the future of creative practices, media frameworks and cultural sensibilities and values?

II. How can humanities and social sciences most effectively contribute to the understanding of the ubiquity, individuality, marketability and technological efficiency of instant media production and consumption (including health diagnostics, warfare and other aspects of public services)?

In effect, the paper proposes a *future research programme* on immediation to address these three interrelated questions:

1. What concrete impact do creative (artistic, vernacular) CC arrangements (static installations, moving gadgets and wearables) have in the emerging "domestication" of live streaming?

2. What specific prognostic value can theories and methodologies of cultural techniques and techno-cultures provide when related to televisual cultures in which audiovisual, (hyper)textual and kinaesthetic outputs are produced and consumed in parallel with the unfolding experience?

3. What actual measures must be taken within emerging research related to live streaming in the top social networks to assess state-of-the-art research and development in the near future?

By investigating these questions, an attempt has been made to:

a) move beyond retro-analytical historizations of (new) media art and futuristic curatorial and theoretical meta-discussions of media cultures in order to:

b) model and develop a more adequate and systematic understanding of the emerging mechanisms of immediation and their immediate cultural impacts; and, finally, to

c) make the acquired insights useful for theorising the impacts of media immediacy, liveness and instantaneity for the future of social and cultural practices.

Launching a systematic study of immediation with an ambitious level of explanatory and predictive power as outlined in this paper would require a great deal of effort and risk. It would need to build on the various findings and to construct new testable and falsifiable theories with high precision and accuracy. This work and risk are worthwhile because of the potential value of outcomes for the humanistic disciplines and societies involved: while, in 2002, there were about 25 million CCTV cameras in operation worldwide, there were almost 10 times more than that in operation in 2014, with an estimated growth of around 14% from 2013–2017.[47] Many such indicators speak of the relevance and need for a concerted research effort to fill the current gaps in our understanding.

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46. The core aspects of multivalent "immediacy" – the (culture of) instantaneity, proximity and connectedness - are converging in a sense of the general dissolution of mediation, an im-mediation (Tomlinson 2007, Bauman 2000). Mapping that territory requires considering both the positive and the negative moments implied and explicated in the chosen (central) cases. The questions around priority or posteriority of immediation to those of mediation, telemediation, hypermediation and remediation are expected to be revisited on a state-of-the-art level suitable to the "coevolutionary dynamics" (Hayles 2006) in the cultural beliefs and practices of the near future.

47. https://technology.ihs.com/532501/245-million-video-surveillance-cameras-installed-globally-in-2014.

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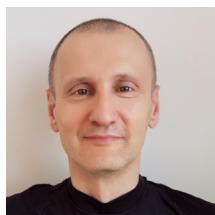
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Books: *Theorien der Videokunst* (ed. 2018); *Sabine Kacunko. Bacteria, Art and other Bagatelles* (2016); *Culture as Capital* (2015); *Framings* (ed. w. H. Körner & E. Harlizius-Klück); *Take it or leave it – Marcel Odenbach-Anthology of Texts and Videos* (ed. w. Y. Spielmann, 2013); *Wiederholung, Differenz und infinitesimale Ästhetik – Matthias Neuenhofer* (2012 – Spiegel. Medium. Kunst. Zur *Geschichte des Spiegels im Zeitalter des Bildes* (2010); *Closed Circuit Videoinstallationen* (2004); *Dieter Kiessling. Closed-Circuit Video 1982–2000* (2001); *Las Meninas transmedial. Malerei. Katoptrik. Videofeedback* (2001); *Marcel Odenbach. Performance, Video, Installation 1975–1998* (1999).