

Harun Farocki's Video Installations

-Working with the Ambivalences of the Post-cinematic Conditions-*

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ABSTRACT

This paper argues that Harun Farocki's video installations result from his working with the ambivalences of the post-cinematic conditions. The first ambivalence is that the installations inherit the critical projects and aesthetic procedures of Farocki's theater-based experimental documentary and essay film on the one hand while restructuring them in response to the new technical and experiential parameters of media installations in the gallery on the other. Farocki's idea of 'soft montage' and his application of it to his video installations can be viewed as dealing with this ambivalence derived from the

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‘relocation of cinema’ or ‘cinema of exhibition.’ The second ambivalence is that the electronic and digital images that Farocki’s installation investigate partly retain the conventions of photography and film on the one hand, but they construct a new mode of perception and a new world picture irreducible to the perception and representational paradigm of photography and film on the other. Examining the ways in which Farocki’s video installations perform the analysis and critique of these images, this paper demonstrates how they are predicated upon his concept of the ‘operational image’ as a set of images produced and circulated for specific functions and uses (thus devoid of the aesthetic and contemplative values in the photographic and cinematic imagery) in the post-cinematic conditions. Working with these two ambivalences of the post-cinematic conditions, Farocki’s video installations maintain his media-archaeological stance toward the origin of cinema while intervening in the operational images. This adds up to another ambivalence of the post-cinematic conditions that underlies his installation pieces.

Key words

Harun Farocki, video installation, post-cinematic conditions, soft montage, operational image

국문초록

하룬 파로키의 비디오 설치작품 -포스트-시네마 조건의 양가성과 작업하기-

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이 논문은 하룬 파로키의 비디오 설치작품이 포스트-시네마 조건의 여러 양가성과 작업한 결과임을 주장한다. 첫 번째 포스트-시네마 조건의 양가성은 파로키의 비디오 설치작품이 한편으로는 그가 영화관 기반의 작품부터 발전시킨 실험적 다큐멘터리 및 에세이 영화의 비평적 기획과 미학적 절차를 계승하면서도 이를 전시 공간의 미디어 설치작품이라는 포맷이 부여하는 새로운 기술적, 경험적 변수에 맞게 변화시켰음을 뜻한다. 이 논문의 전반부는 ‘영화의 이주’ 또는 ‘전시의 영화’의 맥락으로 설명될 수 이러한 양가성을 그가 비디오 설치작품에 적용한 미학적 절차인 ‘소프트 몽타주(soft montage)’의 개념과 적용을 통해 살펴본다. 두 번째 포스트-시네마 조건의 양가성은 그의 비디오 설치작품이 탐구하는 전자 및 디지털 이미지가 한편으로는 사진 및 영화의 관습을 일정 부분 계승하면서도 다른 한편으로는 사진 및 영화의 지각과 재현 체계로 환원되지 않는 새로운 응시와 세계를 구성한다는 점이다. 이 논문의 후반부는 파로키의 설치작품이 포스트-시네마 조건에서 특정한 목적과 기능을 위해 생산되고 순환되는 (따라서 사진과 영화의 미학적, 관조적 가치가 결여된) 이러한 이미지에 대한 분석과 비평을 수행한다는 점을 그가 제시한 ‘가동적 이미지(operational image)’ 개념과의 연관을 통해 밝힌다. 포스트-시네마 조건의 이 두 양가성과 작업하는 가운데 파로키의 비디오 설치작품은 가동적 이미지에 개입하면서도 영화의 기원으로 돌아가는 미디어 고고학적 자세를 취하는데, 이는 그의 작품에 내재된 포스트-시네마 조건의 또 다른 양가성을 이룬다.

주제어

하룬 파로키, 비디오 설치작품, 포스트-시네마 조건, 소프트 몽타주, 가동적 이미지

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1. Introduction

Since *Schnittstelle/Interface* (1995, two-channel video installation), Harun Farocki traversed the museum and the single screen of the movie theater until his sudden death in 2014. There were several reasons for his expansion of the platform for documentary and the essay film beyond the confines of traditional cinema. Given his marginalized status since the 1960s, characterized by his production of independent films and television documentaries outside the federal sponsorship of film production funds in West Germany,¹⁾ it could be said that the museum's financial support and commissioning played a key role in his venture into media installations. One might think of the fact that his single-channel essay film *Still Life* (1997) had its premier at documenta X (1997), as well as his 12-channel installation *Deep Play* (2006) commissioned by documenta 12 (2007), a work about the various visual apparatuses and their visualizations deployed for the live coverage of the final match of the FIFA World Cup 2006. Still, it is worth nothing that Farocki's video installations cannot totally be explained from these institutional or financial perspectives. These practices are also significant in that they joined a larger tendency of cinema and contemporary art: that is, the popularization of the 'relocation of cinema,' 'cinema of exhibition,' or 'cinematic video installation,'²⁾ which has been a key

1) For this point, see Nora M. Alter, "The Political Im/perceptible: Farocki's *Images of the World and the Inscription of War*," in *Harun Farocki: Working on the Sight-Lines*, ed. Thomas Elsaesser (Amsterdam: Amsterdam University Press, 2004), 212-213.

2) The term 'cinema of exhibition[cinéma d'exposition]' was initially proposed by French critic Jean-Christophe Royoux. See his "Towards a Post-Cinematic Space-Time (From an Ongoing Inventory)," in *Black Box Illuminated*, eds. Sara Arrhenius, Magdalena Malm, and Cristina Ricupero (Sweden: IASPIS and

dimension of the post-cinematic conditions under which the media, forms, techniques, and experiences of the traditional cinema have fundamentally transcended or redrawn its existing boundaries. In the words of Francesco Casetti, the 'cinema of exhibition' is seen to spring from and testify to the 'relocation of cinema,' namely, the "process by which the experience of [cinema] is reactivated and repurposed elsewhere than the place [i.e. the movie theater] in which it was formed, with alternate devices and in new environments."³⁾ For the process includes a multiplicity of film and video installations that appropriate or rework the components of cinema (its image, genre, history, technical devices, etc.) and arrange them for the material, technical, and spectatorial conditions unavailable from the traditional apparatus and experience of cinema and instead unique to exhibitions. Incorporating this double movement of relocation, both retaining cinematic elements and embracing new components from those exhibitionary contexts, Farocki's gallery-based works have been regarded as the key examples of translating documentary and the essay film into media installations, along with those of Chris Marker and Chantal Akerman.

However, it is also significant to bear in mind that an underlying

Propexus; Finland: NIFCA, 2003), 107-120. Also, the term 'cinematic video installation' is coined by Jihoon Kim. He defines it as a set of installation artworks in which video technologies "draw on the cinematic image and narrative but manipulate them in various ways, so that their elements are broken down and the resulting structure and image of the installations appear to be the amalgamation of cinema and video"(quoted in *Between Film, Video, and the Digital: Hybrid Moving Image in the Post-media Age* [New York: Bloomsbury Academic, 2016], 242).

3) Francesco Casetti, *The Lumière Galaxy: Seven Key Words for the Cinema to Come* (New York: Columbia University Press, 2015), 28.

motivation of Farocki's negotiation between single-channel works and media installations was linked to a profound aspect of the post-cinematic conditions. As Thomas Elsaesser astutely points out, before the transition of his work to the gallery, Farocki's cinema had consistently anticipated that the contemporary images and apparatuses that determine our everyday lives have almost totally withdrawn themselves "from the visual plane and escapes traditional representation techniques, including those of cinematic montage."⁴⁾ Seen in this light, the post-cinematic conditions Farocki concerned were not limited to the transition of media from celluloid to digital visual effects in the cinematic production process, the generalization of digital images in the cinematic forms, or the proliferation of non-theatrical screens and platforms in the cinematic experience. His genuine concern was more than the fact that the media and techniques of electronic and digital images became different from those of traditional photography and film: at stake were the changes in the world presented by an image, in the senses shaped by the image, and in the traditional relationship between the image and the world. If one characterizes the post-cinematic conditions as the naturalization of the visual apparatuses, software applications, and viewing interfaces all of which go beyond the traditional cinema, this also means that they are no longer regarded as new but have become part of our perception and world picture. This might echo Steven Shaviro's characterization of 'post-continuity' cinema as a fundamentally new articulation of space and time that "have become relativized or unhinged,"⁵⁾ inasmuch as it no longer consents to

4) Thomas Elsaesser, "Harun Farocki: Filmmaker, Artist, Media Theorist," in *Harun Farocki: Working on the Sight-Lines*, 22.

5) Steven Shaviro, "Post-Continuity: An Introduction," in *Post-cinema: Theorizing 21st-Century Film*, eds. Shane Denson and Julia Leyda (Falmer: REFRAME

the norms of the classical cinema that emulate the hitherto realistic perception of space and time. In this sense, the post-cinematic conditions can also be understood as introducing, in the words of Mark B. N. Hansen, “a fundamental transformation of the image that...begins to operate *without being phenomenally apprehended*.”⁶⁾

In the context of critical filmmaking, this situation raises the issue of how Farocki could extend and elaborate on the modes of analysis, critique, and argumentation that he had developed in his theater-based documentaries and essay films. Which is to say, how could he analyze and critique those new images and visual apparatuses, whose ontological and technical features are not restricted to those of the filmic image, with cinematic techniques and enunciations? If this question functioned as a guiding principle of Farocki's encounter with the post-cinematic conditions from the viewpoint of the traditional cinema, then, this means that he also grappled with another question: how could he expand into the post-cinematic production processes and viewing interfaces his montage techniques grounded in the traditional cinema while also renewing them?

With these two questions in mind, in this paper I argue that Farocki's video installations derive from his coping with the ambivalences of the post-cinematic conditions. Here, I am using the term ‘ambivalence’ to indicate the multifaceted coexistence of the cinematic and the post-cinematic—or, the imbrication of the differences and similarities between the two—on the aesthetic and technical levels of Farocki's video installations, as well as on the levels of the images,

Books, 2016), 58.

6) Mark B. N. Hansen, “Algorithmic Sensibility: Reflections on the Post-perceptual Image,” in *Post-cinema*, 806 (emphasis in original).

which Farocki conceptualized as ‘operational images,’ that they reuse and investigate. The first ambivalence is that the installations inherit the critical projects and aesthetic procedures of Farocki’s theater-based experimental documentary and essay film on the one hand while restructuring them in response to the new technical and experiential parameters of media installations in the gallery on the other. As I will demonstrate in my investigation of *Interface* and *War/Machine* series (2001-03), and other installation works, Farocki’s idea of ‘soft montage’ and his application of it to his video installations can be viewed as dealing with this ambivalence derived from the ‘relocation of cinema’ or ‘cinema of exhibition.’ The second ambivalence is that the electronic and digital images that Farocki’s installation investigate partly retain the conventions of photography and film on the one hand, but they construct a new mode of perception and a new world picture irreducible to the perception and representational paradigm of photography and film on the other. Farocki’s emphasis on the ontological and aesthetic differences of the electronic and digital images from the photochemical images becomes more evident in the more recent installations such as *Serious Games I-IV* (2009-10) and *Parallel I-IV* (2012-14). Examining the ways in which these two works perform the analysis and critique of these images, I argue that they are predicated upon Farocki’s concept of the ‘operational image’ as a set of images produced and circulated for specific functions and uses (thus devoid of the aesthetic and contemplative values in the photographic and cinematic imagery) in the post-cinematic conditions.

2. Soft Montage, the Spatialization of Montage

Most of Farocki's installations are built upon the presentation of images in two tracks with double projection or two monitors, except *Deep Play* and *Workers Leaving the Factory in Eleven Decades* (2006, 12-channel video installation). There are several ways of delineating what made him apply this strategy. The first way is to explain it in relation to the modes of montage in his single-channel films for theatrical release or television. Volker Pantenburg argues that his montage method of 'repeating and varying,' *i.e.* presenting the same image again with another image, voice-over commentary, or intertitles, to assume it as the object of reflection and argumentation, is an aesthetic and at the same time instructional procedure, which was applied since the late 1960s to *Inextinguishable Fire* (1969), *As You See* (1986), and *Images of the World and the Inscription of War* (1988).⁷⁾

Before his transition to media installations, Farocki had appropriated existing images from various sources, commercial, educational, and propaganda films, and films for TV, establishing them as his object of critique, reusing them for critique of other images, and recycling them for not only film production but also critical writings and radio scripts. He once called this method 'Verbund(connecting or synergy),' which refers to the German industrial system in which discrete machines, units, and institutions are integrated to the production of a single commodity. In Farocki's own words:

7) Volker Pantenburg, "Manual: Harun Farocki's Instructional Work," in *Harun Farocki: Against What? Against Whom?*, eds. Antje Ehmman and Kodwo Eshun (London: Koenig Books LTD, 2009), 90-100.

...taking my cue from the steel industry, where every waste product flows back into the process of production and as little energy as possible gets lost, I try to organise a *Verbund* for my own work. The basic research for a project I finance with a radio broadcast, some of the books I use I review for the book programme, and many of the things I notice during this kind of preparatory work end up in my television features.⁸⁾

This ‘Verbund’ method, which encompasses both the integration of discrete elements and the recycling of them for other purposes, was extended to Farocki’s montage of dealing with existing images. For instance, a single image of the same German automobile factory was combined with other images of factories and industries as the object of his critical commentary on the synergy effect of the capitalist production system in the early 20th century in *Between Two Wars* (1978). The image was later reused in *Images of the World and the Inscription of War* as a material for developing its argument on the bond between mechanical vision and the technologies of war. From this perspective, the ‘Verbund’ method is an example of Farocki’s expansion of his independent film practice into a technique of montage, in that its strategy of recycling the same image in relation to other images and discourses derived from “a creative thinking about alternative ways of producing images: the solution is located in montage and editing.”⁹⁾ Additionally, the ‘Verbund’ method of combining discrete materials and media is demonstrated not simply in the re-appearance of a single image in another work in relation to other contexts or perspectives, but

8) Harun Farocki, “Notwendige Abwechslung und Vielfalt,” *Filmkritik* 224 (August 1975): 360-369. Quoted in Elsaesser, “Harun Farocki,” 16.

9) Alter, “One, Two, Three Montages ... Harun Farocki’s War Documentaries,” in *A Companion to Contemporary Documentary Film*, eds. Alexandra Juhasz and Alisa Lebow (London: Wiley-Blackwell, 2015), 435.

also in the scenes to which the “principle of separation and joining”¹⁰⁾ is applied to reveal hidden connections of seemingly unrelated social systems or apparatuses.

Finally, it could also be argued that Farocki's media installations, which compare and contrast images in two image tracks or juxtapose a single image with intertitles or voice-over commentaries, are extensions of the essayistic filmmaking he developed in his theatrical and television films, or, by extension, of the literary essay tradition. A particular case in point, given the tradition of the German critical theory that informed Farocki, is the influence of Theodore W. Adorno, who established the essay as a mode of writing that expresses anti-systemic intellect and develops its thought. As with the structure of the essay, Adorno wrote, “all of its concepts are presentable in such a way that they support one another, that each one articulates itself according to the configuration that it forms with the others. In the essay discreetly separated elements enter into a readable context.”¹¹⁾ Moreover, Adorno also expressed his opinion that despite his longstanding antipathy toward cinema as an institution of culture industry, an alternative cinema could be predicated upon a mode of “montage which does not interfere with things but rather arranges them in a constellation akin to that of writing.”¹²⁾ Here, the mode of montage ‘akin to that of writing’ means a technique of

10) Thomas Elsaesser and Alexander Alberro, “Farocki: A Frame for the No Longer Visible: Thomas Elsaesser in Conversation with Alexander Alberro,” *e-flux*, no. 59 (November 2014), <https://www.e-flux.com/journal/59/61111/farocki-a-frame-for-the-no-longer-visible-thomas-elsaesser-in-conversation-with-alexander-alberro/> (accessed August 1, 2018).

11) Theodore W. Adorno, “The Essay as Form (1958),” *New German Critique*, no. 32 (1984): 161.

12) Adorno, “Transparencies on Film,” in *The Culture Industry: Selected Essays on Mass Culture*, ed. J. M. Bernstein (New York: Routledge, 2001), 158.

montage that activates fragmentation, discontinuity, and non-totality tantamount to the rhetorical strategies of the essay, one that in turn develops thoughts and argumentations on the things through processes of reflection. This technique was certainly reflected in his key single-channel works including *Inextinguishable Fire* and *Images of the World and the Inscription of War*.

While all those three explanations are more or less relevant, I argue that Farocki's placement of two or multiple images side by side (*Nebeneinander*) in his installations is seen to respond to the post-cinematic conditions in that it closely relates to the experimental traditions of multiple screen interfaces that challenge or go beyond the single-screen setup of the standard cinematic apparatus on the one hand, and to the technical shift from celluloid-based montage to video and digital editing on the other. With regard to his employment of double projection in *Interface*, Farocki mentioned "double or multiple projections from 1965 onwards, 'expanded cinema' which criticized the norms of cinematic projection by imposing radical demands on it"¹³⁾ on the one hand. A more crucial tradition he raised on the other, however, was Jean-Luc Godard and Anne-Marie Miéville's *Numéro deux* (Number Two, 1975), in which they filmed video images on two monitors in 35mm. From the juxtaposition of the two monitors in *Numero deux*, Farocki found a possibility of montage for making various relationships of two images in a way that is more elastic than the method of single-frame montage based on the sequentiality of images and the replacement of an image by another. The mode of montage grounded in this possibility is what Farocki has called 'soft montage,' which

13) Farocki, "Cross Influence/Soft Montage," in *Harun Farocki: Against What? Against Whom?*, 72.

corresponds to the technical transition from film to video on the one hand, and which offers filmmakers and viewers alike more freedom to construct different relations between two images on the other. Farocki's further comment on *Numéro deux* demonstrates those two effects of 'soft montage':

I say 'soft montage' since what is at issue is a general relatedness, rather than a strict opposition or equation. *Numéro deux* does not predetermine how the two images are to be connected; we must build up the associations ourselves in an ongoing way as the film unfolds. There's another sense in which the film seems to have been conceptualized more within the parameters of video than within those of cinema.¹⁴⁾

Interface (figure 1) provides Farocki's self-reflexive investigation into the possibility of soft montage within the parameters of video editing. Here, he revisits the fragments of his previous films such as *Inextinguishable Fire* and *Videogram of a Revolution* (1992) with his video editing table, demonstrating the principle of soft montage in conjunction with his reflection on the technical and aesthetic differences between celluloid-based editing and video editing, as well as on the ontological differences between the images manipulated by each of the two techniques. Thus, the installation's double projection emulates the structure of the editing table, and this equivalence is predicated on Farocki's view that video installation is able to aesthetically extend the work on the editing table, as he writes: "At the editing table, with the film winding back and forth, you can experience the autonomy of the image."¹⁵⁾ Farocki's technique of soft montage as akin to the technical

14) Quoted in Harun Farocki and Kaja Silverman, *Speaking about Godard* (New York: New York University Press, 1998), 142.

and aesthetic operations of his editing table is particularly efficient in the work's key scene in which he compares two types of editing: the video-based editing in front of an array of monitors and switchers, and the manual editing with the filmstrips mounted on a Steenbeck machine. The presence of his hand in both image tracks allows Farocki to establish the two types of editing as the objects of his intellectual comparison and reflection, as it is coupled with his commentary: "when working with film instead of video, you have to make an actual cut in the image or sound strip. As opposed to video editing, where you simply copy from one tape to the next." While this comparison seems to privilege the tactile and material aspects of celluloid-based editing and how video-based editing is devoid of them, Farocki's consistent use of soft montage in *Interface* also demonstrates how the arrangement of double projection is also capable of expanding and varying his intellectual analysis and commentary on images in ways that are not available from his single-screen films. This is evident in the work's ensuing scenes where the footage of his previous films, including *Inextinguishable Fire* and *Images of the World and the Inscription of War*, is simultaneously juxtaposed with the images of Farocki's face watching it on the editing table. Thus, the double projection of *Interface* has an ambivalent effect on Farocki's comparison between the cinematic and the post-cinematic: on the one hand, its emulation of the editing table suggests how video-based editing has replaced or surpassed the manual and tactile aspects of celluloid-based editing; on the other hand, however, it also functions to activate Farocki's method of soft montage

15) Farocki, "What an Editing Table Is," in *Nachdrunk/Imprint: Texte/Writings*, trans. Laurent Faasch-Ibrahim, eds. Susanne Gaensheimer and Nicolaus Schafhausen (Berlin, Germany: Lukas and Sternberg, 2001), 80.



[Fig. 1] Harun Farocki, *Schnittstelle/Interface* (1995), two-channel video installation

as it makes possible for an image—for instance, the image of Farocki gazing at his editing table and its monitors—to be placed on two different screens of the work (left or right) and appear side by side with other images encompassing the image of the filmstrip on the Steenbeck machine, the fragments from his previous films, and the table's monitors and switchers. In this way, *Interface*'s apparatus designed for the media installation in the gallery constructs an open circuit of multiple and simultaneous comparisons and analyses, which is seen to activate Farocki's method of soft montage. As Christa Blümlinger astutely observes, this strategy of expanding the method of video editing into double projection contributes to the aesthetic and material construction of the circuit of thoughts that is not reducible to the sequential linkage of one image to another: "The principle of this montage...enables the circulation of images through precisely calculated

sequences of change and repetitions, not just within individual tracks, but above all between the two screens.”¹⁶⁾

Farocki's media installation pieces since the late 1990s are exemplary of the spatialization of montage by theatricalizing multiple monitors or projectors. As Elsaesser clearly summarizes, the evolution of Farocki's work from the cinema based on the principle of montage to media installation art has two interrelated implications. On the one hand, the implementation of video projectors or monitors allows Farocki to overcome the sequentiality of filmic montage, which produces only a metonymic association of two temporally contiguous images, and to achieve “a mode of simultaneous multi-dimensional thinking.”¹⁷⁾ Seen in this light, the screens or monitors are means to expand on Farocki's conceptual arrangements of existing or recorded material in such metaphoric ways that one image functions as a commentary on, or supplement to, the other, beyond the limit of the conventional single frame wherein one shot must appear as the substitution of the previous shot.¹⁸⁾ On the other hand, Farocki's deployment of the screens and monitors as the three-dimensional tangible media object serves as a type of metonym for post-cinematic media. Before his death, Farocki was preoccupied with investigating how these media permeate and structure

16) Christa Blümlinger, “Incisive Divides and Revolving Images: On the Installation *Schnittstelle*,” in *Harun Farocki: Working on the Sight-Lines*, 63.

17) Elsaesser, “Harun Farocki,” 24.

18) In an interview with Rembert Hüser, Farocki himself explains the relationship between the dimension of the editing table and that of double projection surfaces or monitors as follows: “You are dealing with two images! On the right is the edited image; on the left, the next image to be added on. The right image makes a demand, but is also being criticized by the left one, sometimes even condemned. This made me experiment with double projection works.” (Rembert Hüser, “Nine Minutes in the Yard: A Conversation with Harun Farocki,” in *Harun Farocki: Working on the Sight-Lines*, 302).

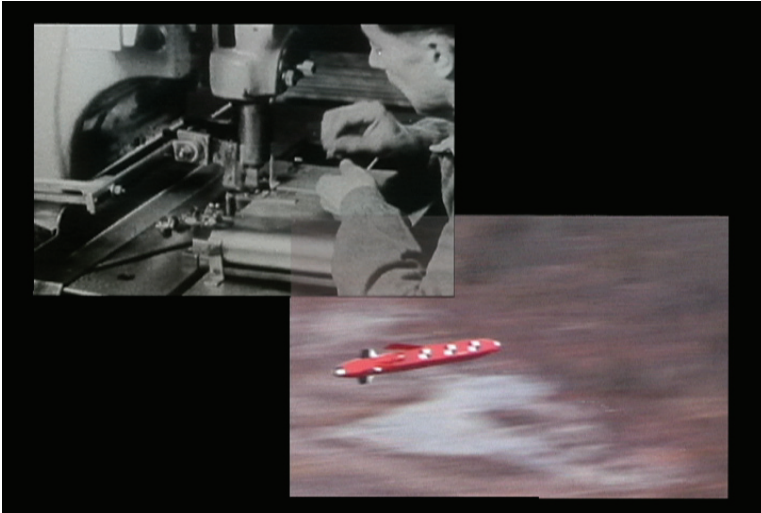
the social, cultural, military, and everyday lives of our contemporary society, and how the image produced and circulated by these media evade the traditional regime of visual representation. The media, namely the electronic and digital “vision machines,¹⁹⁾” produce specific images as the scientific, educational, or administrative instruments that function to set in motion social workplaces, such as factories, laboratories, prisons, the military, shopping malls, and entertainment industries. To use on Farocki's own terms, these images are characterized as “operational images,” “prosthetic images,” “surveillance images,” “data images,” etc.²⁰⁾ These images internalize the ways in which the vision machines collect, display, and circulate the information in society and its subjects with their artificial eyes and spatiotemporal logic. In this sense, the media objects in Farocki's installations present themselves as extensions of the machines, reminiscent of multiple monitors in the surveillance room or multiple windows in the computer-based control panel.

In his *War/Machine* (figure 2) installation trilogy, Farocki provides a detailed analysis of ‘operational images,’ in this case images produced for different instrumental purposes—military surveillance, medical operation, and the automation system in a factory—and given no aesthetic values other than functional and technical. His side-by-side

19) Paul Virilio, *The Vision Machine*, trans. Julie Rose (New York: Verso, 1994).

20) Antje Ehmman and Kodwo Eshun, “A to Z of HF or: 26 Introductions to HF,” *Harun Farocki: Against What? Against Whom?*, 211. Of all the terms the “operational image” is the most central and inclusive to Farocki. Media artist and theorist Jordan Crandall also uses the term “operational media” in the same way as Farocki: “Operational media is motored by the need for an instantaneity of action, where time delays, spatial distances, and “middlemen” are reduced through computational systems that facilitate the sharing of human and machinic functions.” (Crandall, “Operational Media,” *CTheory.net*, published on January 6, 2005, <http://www.ctheory.net/articles.aspx?id=441>, accessed on June 17, 2018).

montage trope is initially intended to provide a comparison between different types of machines that produce their own functional images, and thereby to reveal an array of common technical operations embedded within the images: for example, the video-tracking system, which allows for the automatic monitoring of moving targets, was used for aircraft bombs in the Gulf War, for the robot controller in manufacturing, for military simulation testing sectors, and for endoscopes in operation rooms. The images produced by this system are all processed and altered by the computer's simulation and algorithm, of which the perception and gaze resemble but do not involve human hands and eyes. Farocki's montage therefore takes a genealogical approach to these operational images created and processed by the digital image, as he juxtaposes the images of an unmanned aircraft during the Gulf War with the footage of human hands dealing with a machine's components on the conveyor belt, and with the images of a missile targeting system from the newsreel during World War II. In this way, Farocki's recycling and rearrangement of the operational images with his soft montage reveals his ambivalent view on their relationship to the photographic and cinematic regime of visual culture, that is, the coexistence of continuity and discontinuity, or similarity and difference: on the one hand, the simulated and algorithmic aspects of the images in the contemporary warfare and unmanned workplaces demonstrate how they are distinct from the photographic and cinematic images based on the human being's observation of reality; on the other hand, the operational image itself is not a totally unprecedented breed of visual expressions, as it dates back to how the industrial and educational films of the 20th century were used to form the knowledge of the functions and uses of the mechanical and automated tools in the modern warfare



[Fig. 2] still from Farocki, *Eye/Machine I* (2001), two-channel video installation

and factories.

The two categories of montage—a comparison between different digital images, and another between the digital images and the analogue/manual operational images—become more effective in his double-screen installation version in two ways. First, for gallery visitors, the spatialized presence of two images, particularly two video and digital images, evokes different faces of the post-cinematic apparatus that form their contemporary viewing situations and subjectivity, including video monitors constantly replaying images as information, and surveillance cameras working for the disciplinary control of society on a microscopic scale. By removing all the operational images from their original contexts and placing them in the circuit of technical and functional associations, the double-channel spatial configuration alludes to the larger structure of contemporary media in which different

instrumental systems of representation converge.²¹⁾ Second, within this configuration, the viewers recognize themselves as a potential operator of these images, insofar as Farocki's tropes of montage position them as though they were on an informational panel of digital interfaces. For example, in the scene in which military simulation systems are being tested, the viewers see a sequence of the operator's work side by side with the graphic simulations of weapons and the images from the footage taken with cameras installed in the weapons. Seen in this light, the viewers' activities during their observation of the installation, including shifting focus from the left monitor (or projected image) to the right monitor and keeping their eye on the two monitors and their image tracks, resemble those of the simulation operators, who must be trained to match his eyes and hands with his immediate intellectual processing of information. As Blüminger notes, by placing itself as a "theatre of seeing and perceiving," the installation allows its viewer to make "a kind of performance out of the montage."²²⁾

21) Concerning this, Farocki has once remarked that the installation version of *Eye/Machine* contributes to "displacing" all the found images into the newly designed media environment open to the viewer's embodied perception and contemplation: "When I saw *Eye/Machine* for the third time in an exhibition, in a gallery in New York, both images appeared on a white wall, side by side. The work had a large space to itself and I liked displaced character of all the images we had gone to great trouble collecting in research centers, public relations departments, educational film and other archives. Mostly operational images spent in technical execution, necessary for one operation and later erased from the data collector one-way images. That the US Army command showed operational images during the Gulf War, images that were produced for operational reasons and not for edification or instruction, it also incredible displacement and is also conceptual art"(Farocki, "Cross Influence/Soft Montage,"74).

22) Blüminger, "The Art of the Possible: Notes about Some Installations by Harun Farocki," in *Art and the Moving Image: A Critical Reader*, ed. Tanya Leighton (London: Tate Publishing, 2008), 279.

Deepening his exploration of the transition of image and montage from the cinematic to the post-cinematic era, Farocki's two-channel video installation, *Counter-Music* (2004, figure 3), integrates a number of films built on the portrayal of the modern city—so-called “City Symphony” films, such as *The Man with the Movie Camera* and *Berlin: Symphony of a Great City* (Walter Ruttmann, 1927), a short extract from a US science fiction movie *Fantastic Voyage* (Richard Fleisher, 1966), and fragments from industrial films—with the footage on contemporary urban life, including video-surveillance material (of streets, windows, rooms, and culverts), computer-generated images (infrared pictures of a building's entries, information graphics showing the data of the surveillance footage, architectural simulations, etc.), and images he took in Lille, France. While this selection and distribution of the two threads thematically corresponds to his *War/Machine* trilogy, Farocki's principle of organizing them differs somewhat from the trilogy: if *War/Machine* sets up a historical connection between the cinematic and the post-cinematic images in terms of the automation of human vision, then *Counter-Music* contrasts these two images according to the role of montage in characterizing their different states. While Vertov's and Ruttmann's “Urban Symphony” films of the 1920s organize the visible world according to the principles of montage that require an image to be supplemented by others, the footage drawn from our post-industrial urban society lacks the “counter-shot.” This difference is related to one between the city governed by the collaboration of man and machine in the industrial age and today's urban environment controlled by the automated circulation and calculation of information in the digital age. Here, it is possible to see how Farocki's view on the operational images was shifted from his archaeological assemblage of them

encompassing both the industrial and educational films and the images of surveillance, unmanned war, and endoscopic operation in his *War/Machine* trilogy to his emphasis upon the images' aesthetic difference from their predecessor, namely, their lack of 'counter-shot,' in *Counter-Music*. In this context, Farocki's deployment of the two projection surfaces materializes the comparison between the two regimes of images in the three-dimensional space. As Martin Blumenthal-Barby neatly summarizes, while the installation's focus of attention is the operational image that excludes human beings, it also "derives its performative traction from his two-screen 'soft montage,' which does require human beings.²³⁾

Deep Play (figure 4) deepens *Counter-Music*'s exploration of the popularization of surveillance images in the contemporary everyday life and industry in the context of the FIFA World Cup Final as a televisual global media event, while also expanding the scope of soft montage beyond the comparison and mutual commentary of two images and into the assemblage of multiple screens. What the work's twelve screens show encompass the notation of the final match for statistical assessment, the game's live footage juxtaposed with the bar charts of the speed of the players, footage from a high angle camera, images from the camera tracking of a particular player, simulation images for the match analysts, external view of the Olympic stadium, and the alternating footage of the Italian and French coaches. Interestingly enough, there is no intertitle or voice-over commentary, much less any distinct montage technique to distinguish specific images or to compare or contrast them with others, unlike *Interface*, *Eye/Machine* trilogy, and

23) Martin Blumenthal-Barby, "Counter-Music: Harun Farocki's Theory of a New Image Type," *October*, no. 151 (2015): 140.

Counter-Music. Instead, the twelve screens equivalently arrange the various vision machines and the software-based, graphic, and surveillance images that they produce and circulate, involved in the contemporary viewers' experience of the live coverage of the global spectacular event. Séamus Kealy neatly explains the effect of this assemblage of the machines and images as follows:

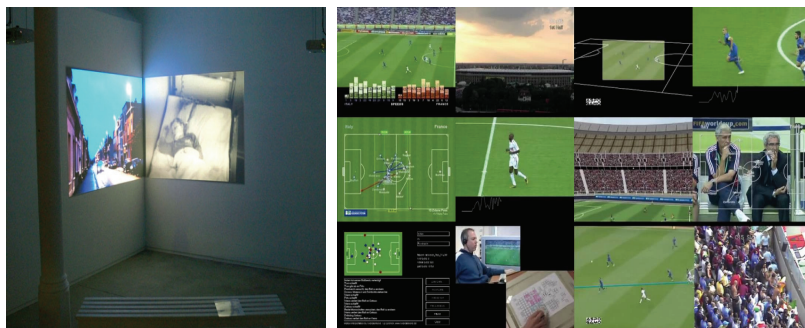
What *Deep Play* illustrates...is the normalization of the experience and omnipresence of the mechanical gaze. That is, in *Deep Play*, the tedium with which the computer analysts do their digital manipulations, the factness of the universalism of the experience of the World Cup spectacle, and the techno-aesthetic fusion of this sports spectacle with the mechanical gaze (and its techno-analytic extensions) are all shown plainly, without much fuss, in the twelve projections."²⁴⁾

To put it another way, Farocki's montage activated with this arrangement of the twelve screens aims to draw viewers' attention to the live event as constructed by a *dispositif*, a complex technical, institutional, and discursive assemblage of heterogeneous technologies, images, and information,²⁵⁾ as the viewers are encouraged to perceive both the live footage and the images which are involved in its transmission but which they cannot see, in the 'plain' sight. Accordingly, Farocki's multi-screen assemblage in *Deep Play* sets in

24) Séamus Kealy, "A Few Notes on *Deep Play*," in *Harun Farock: Soft Montage*, 117.

25) This idea of *dispositif* is indebted to Michel Foucault's and Giorgio Agamben's thoughts, particularly the latter that expands Foucault's original definition of *dispositif* into the assemblage of techniques and technical objects itself that produces particular types of subjectification (Agamben, "*What is An Apparatus?*" and *Other Essays*, trans. David Kishik and Stefan Pedatella [Stanford, CA: Stanford University Press, 2009], 1-24).

motion a *montage as dispositif*, in that it propels viewers to experience the extent to which the surveillance gazes and images themselves run parallel to and constitute all forms of knowledge and action, including the sports event. This, too, resonates with what Miriam de Rosa calls the “mise en forme of surveillant assemblage,” for which “Farocki designs a superimposition of visual and filmic traces, playing a first-person role in the reproduction of the ensemble of procedures ruling the contemporary society of control.”²⁶⁾



[Fig. 3] Farocki, *Counter-Music* (2004), two-channel video installation

[Fig. 4] Stills from Farocki, *Deep Play* (2006), twelve-channel video installation

26) Miriam de Rosa, “Poetics and Politics of the Trace: Notes on Surveillance Practices through Harun Farocki’s Work,” *Necus: European Journal of Media Studies*, vol. 3, no. 1 (2014), <https://necus-ejms.org/poetics-politics-trace-notes-surveillance-practices-harun-farockis-work/> (accessed August 1, 2018).

3. Operational Images as a New Default Value of Images

The 'operational images' that Farocki's installations investigate and comment on refer to the images dissociated from the aesthetic status of photographic and filmic images and instead employed for the functional and instrumental uses of machines and social institutions (*dispositifs*), those that internalize their principles and 'operations' for these uses. These two implications of the operational images can be more illuminated in Farocki's thoughts.

Just as mechanical robots initially took workers in the factory as their model, shortly afterwards surpassing and displacing them, so the sensory devices are meant to replace the work of the human eye...I have called such images... 'operational images.' Images that do not represent reality but are instead part of a technical operation."²⁷⁾

The first implication drawn from this definition is that the operational images signify and engender the decoupling of eye and machine; and the second implication is the separation between the autonomy of machines or software applications and their impact on the human body and sight inasmuch as the images are part of the machines or applications that produce and circulate them. Farocki's further comment on the operational images supports the latter implication: "A computer can indeed process images, but it needs no real images from which to determine the verify or falsify of what is shown"²⁸⁾ To be sure,

27) Farocki, "War Always Finds a Way," trans. Daniel Hendrickson, *contingent*, vol. 4, no. 4 (2015): 56-57.

28) Farocki, "Phantom Images," *Public*, no. 29 (2004): 21.

Farocki's concept is not alone in terms of the mechanization of vision and the autonomy of the images and machine, both of which include the surveillance images and the unmanned cameras in the warfare. In his production of *Eye/Machine* trilogy, Farocki had in mind Paul Virilio's influencing study on how the automation and acceleration of the technologies of war has historically propelled the replacement and colonization of the human sight by the 'logistics of perception.'²⁹⁾ Also, the concept of the operational image is in close dialogue with Vilém Flusser's 'technical image,' which he defines as the kind of images distinguished from the traditional image available for observation and representation and instead produced and circulated for the computation of concepts and the transmission of information. "What remains [in the technical images] are particles without dimension that can be neither grasped nor represented nor understood," Flusser writes, "They are inaccessible to hands, eyes, or fingers. But they can be calculated (calculus, "pebbles") and can, by means of special apparatuses equipped with keys, be computed."³⁰⁾ Flusser's definition of the technical image resonates not only with the synthetic nature of the computer-generated imagery composed of dots, pixels, and lines, but also with the functionality and autonomy (that is, internalization of the mechanical or algorithmic operations) of what Farocki calls the operational image. Insofar as Flusser sees a key function of the technical image as the transmission of information necessary for the maintenance of the society and the subjectification of individuals, the concept is also linked to an aspect of what Gilles Deleuze calls the 'society of control,' a

29) Paul Virilio, *War and Cinema: The Logistic of Perception*, trans. Patrick Camiller (New York: Verso, 1989).

30) Vilém Flusser, *Into the Universe of Technical Images*, trans. Nancy Ann Roth (Minneapolis, MN: University of Minnesota Press, 2011), 10.

contemporary type of society distinct from the disciplinary society of the modern age. For Deleuze stresses the vital role of information, codes, and computers in the operation of the control society: "In the societies of control...what is important is no longer either a signature or a number, but a code...The numerical language of control is made of codes that mark access to information, or reject it...Individuals have become 'dividuals,' and masses, samples, data, markets, or 'banks.'"³¹⁾ Seen in this light, Farocki's *Eye/Machine* trilogy, *I Thought I Was Seeing Convicts* (2000), and *The Creators of Shopping Worlds* (2001) investigate the ways in which the image as information works in the control society, and in which the machines and devices involved in the image operate.

Still, Farocki's interest in the operational images goes beyond their lack of aesthetic properties, and their uses for particular functions and instructions. According to Elsaesser, a more profound implication of the operational images is that they "are the new default value of all image-making, against which more traditional images...have to define themselves."³²⁾ A crucial issue raised by the operational images, then, is how the world composed of them is similar to and different from that (or the relation between image and world) represented by photography and cinema as the 'window on the world' or 'mirror to the self.' Another key issue is the consequence that the operation of these images makes on the human subject and his world, because their dominance as the 'new default value of all images' suggests that "instead of looking at images, we are more and more clicking on images."³³⁾ With this in

31) Gilles Deleuze, "Postscript on the Societies of Control," *October*, no. 59 (1992): 5.

32) Elsaesser, "Simulation and the Labour of Invisibility: Harun Farocki's Life Manuals," *Animation: An Interdisciplinary Journal*, vol. 12, no. 3 (2017): 219.

33) Elsaesser and Alberro, "Farocki: A Frame for the No Longer Visible."

mind, Pantenburg offers an extensive definition of operational images as “the inclusion of all kinds of images that actively initiate processes and actions, be they technical or non-technical, produced by humans or machines.”³⁴⁾ In fact, Farocki himself emphasizes the importance of reflecting on the ‘processes and actions’ initiated by the operational images in the context of war simulations:

A computer animation today reproaches filmed footage for its redundant details, as much as industrial products reproached the handmade object for its irregularities. The fact that in computer-generated images it is possible to adjust the point of view via zoom and the camera position, or that the figure of a soldier or combatant can shoot and be shot, apparently outweighs the loss of an evident relationship to the factual.³⁵⁾

In this context, I argue that Farocki’s installation works, in particular *Serious Games I-IV* and *Parallel I-IV*, scrutinize the two issues raised by the operational images—namely, what their world is, and what consequence their processes and actions make—while putting more emphasis on their technical and ontological differences from the images of photography and film. Farocki’s reflection on the two issues that is reflected in those two installations, then, proceeds to illustrate the extent to which the operational images, albeit resembling the appearance of photographic imagery, begin “to operate *without being phenomenally apprehended*”³⁶⁾ and are geared toward expressing the time and space that “have become relativized or unhinged”³⁷⁾ from the realistic and

34) Pantenburg, “Working Images: Harun Farocki and the Operational Image,” in *Image Operations: Visual Media and Political Conflict*, eds. Jens Eder and Charlotte Klonk (Manchester, UK: Manchester University Press, 2017), 58.

35) Farocki, “Immersion (Working Title),” in *Harun Farocki: Soft Montage*, 50.

36) Hansen, “Algorithmic Sensibility,” 806 (emphasis in original).

anthropomorphic figuration of space and time in photography and film.

Serious Games I-IV visualize not merely the characteristics of the contemporary warfare as the virtual war or the virtualization of war, but also the technical features of the war simulation images as operational images, as well as how the images and their *dispositifs* modulate the sensation and affect of the subjects performing the war. *Serious Games I: Watson is Dead* (2009, two-channel video installation, figure 5) records and analyzes the soldiers in “Military Operations in Urban Terrain (MOUT),” a program based in the military base in California, who were trained through a sophisticated simulation environment called Virtual Battle Space 2 to prepare for the wars in Afghanistan and Iraq. A four-soldier team in this environment maneuver tanks, go out on sorties, and engage in battles, spontaneously dealing with (and shooting) virtual threats including IEDs(improvised explosive devices), combatants, and civilians. The videogame images of Virtual Battle Space 2 are juxtaposed with the footage of the commander who inserts those virtual threats with his program, and with the four soldiers who cope with them in real time in front of their computers. Here, Farocki’s side-by-side placement of these images presents the virtual war as the assemblage of the game space, the control room, and the computers. As an avatar of a team member called Watson goes down and he retreats from his computer, the piece invokes the sense of anaestheticized distancing engendered by the virtualization of war. This sense indeed meets with the object of investigation in *Serious Games III: Immersion* (2010, two-channel video installation, figure 6) as another side of the same coin. Its left screen initially presents a group of psychologists who introduce Virtual Iraq, a war simulation program supported by the

37) Shaviro, “Post-Continuity,” 58.

US army and used for the therapy of the soldiers suffering from the Post-traumatic Stress Disorder (PTSD) caused by their dispatch to Iraq or Afghanistan. Its right screen, on the other hand, shows the multisensory environment of Virtual Iraq, as well as its control panels. This disposition of the two scenes moves on to the juxtaposition of a soldier-patient experiencing Virtual Iraq on the right screen with its simulated war space on the left. As the left screen more and more vividly emulates the real war, the patient on the right encounters psychic pains of what he experienced and felt in it. In this sense, *Serious Games III: Immersion* forms a double of *Serious Games I: Watson is Down*. For if the latter demonstrates how the war simulation images operate to train the preemptive sense of the *future* war for which the soldiers are prepared, the former investigates how the same kind of images functions to reconstruct the repressed memories and affects of the traumatic war of the *past*. Moreover, *Serious Games III: Immersion* guides viewers towards a ambivalent coexistence of the visible and the invisible in regards to the effects of Virtual Iraq on the traumatized patients. While the footage allows viewers to observe the process by which the simulation images trigger and construct the patient's affective responses, it remains invisible exactly on which levels of the patient and the simulation *dispositifs* they affect him. These invisible levels suggest that the war simulation images affect the soldiers' brain functions, and that within this image regime, "the traumatic realities of war become a matter of affective habituation and the modulation of memory."³⁸) In order for the images to operate on the invisible level of the cerebral realm, they must be as realistic as the

38) Pasi Väliäho, *Biopolitical Screens: Image, Power, and the Neoliberal Brain* (Cambridge, MA: MIT Press, 2014), 66.



[Fig. 5] Still from Farocki, *Serious Games I: Watson is Dead* (2009), two-channel video installation

[Fig. 6] still from *Serious Games III: Immersion* (2010), two-channel video installation

real war possible. I argue that this implies another ambivalence of operational images, which means that they may resemble reality but escape from human perception. The two-channel soft montage of *Serious Game III: Immersion* gives a clue to this ambivalence, on which Farocki himself has commented as follows:

Soldiers in the United States are prepared for war with the aid of digital images. Similar images are used to help soldiers process their wartime experience. Traumatized soldiers are shown computer-generated animated film featuring scenes from the sites at which they experienced the horrors of war. That is supposed to help them recall, relive, and work their way through their experiences...Landscapes with deserts and palm trees, concrete runways and utility poles-and the statues of Hussein-are fixed in the minds of children today much like the alpine villages that children of past generations once assembled as accessories for their model trains...It is better to assemble montages than interpret. This introduction suggests establishing changing relationships between elements or fragments.³⁹⁾

39) Harun Farocki and Antje Ehmman, "Serious Games: An Introduction," in *Serious Games: War/Media/Art*, eds. Ralf Beil and Antje Ermann (Ostfildern, Germany: Hatje Cantz Verlag, 2011), 26-27.

Serious Games III: Three Dead (2010, single-channel video installation) varies the point that computer screens and simulation images escape from human perception but construct the material and affective dimensions of the real war. Its objects of comparison are the images of a virtual Middle Eastern village and the live-action footage of a set city in the California desert that was modelled after the village, where a group of actors as stand-ins of villagers and soldiers perform everyday activities and situations of attack. Despite the single-channel format, the piece's juxtaposition of the two scenes invokes an ambivalent relationship of the war simulation composed of operational images with the cinematic image in regards to their reality effect. The aerial view of the virtual village in the piece's introduction and its street scene viewed from a moving virtual vehicle in the piece's end suggest the operational images' mimetic relationship with their cinematic counterpart. As the images are linked to the live-action footage of the reenactment of the actors in the set city, however, the relationship between original and copy, and between the cinematic and the digital images, becomes ambiguous. For the stylized dialogue and behaviors of the actors suggest that their reenactment might imitate the scripted situation of the war videogame. This is what Farocki has written in his production statement of the series: "The training exercises in the mock-up city with its extras are not that much different from the videogames. On the contrary, it seems as though the real world is imitating the world of videogames."⁴⁰ Ultimately, *Serious Game II: Three Dead* demonstrates that operational images imitate the reality effect of the cinematic image but functions as a new default value for the construction of the real war. This is

40) Farocki, "Serious Games," *NECSUS: European Journal of Media Studies*, vol. 3, no. 2 (2014), <https://necsus-ejms.org/serious-games/> (accessed August 1, 2018).

repeated in *Serious Games IV: A Sun with No Shadow* (2010, two-channel video installation) from different perspectives. Revisiting the images of Virtual Battle Space 2 in *Serious Games I: Watson is Down* and Virtual Iraq in *Serious Games III: Immersion*, this piece shifts a focus of scrutiny to the ambivalent aspects of the virtual landscape and enemies that populate the simulated war environments. The tanks in Virtual Battle Space 2 appear firstly without shadow, then with the shadow created by the rendering of its software. Along with this repetition, the following intertitles reveal the ambivalent reality of the operational images—that they are data objects calculated, synthesized, and manipulated by the computer but visually similar to the real warfare: “The shadow of the armored vehicle is determined by the position of an imaginary sun. The sun above this computer landscape moves like the real sun above the real Afghanistan.” This ambivalent reality is repeatedly highlighted as the piece demonstrates how sufficiently real the details of Virtual Iraq are to enable the patient experiencing it to replay his traumatic memories and affects.

If *Serious Games I-IV* investigate the logic of mimetic realism that supports the operational images’ successful construction of reality and actions in the contemporary war, then *Parallel I-IV* explores the realism’s underlying algorithmic dimensions while also unveiling how the world constructed by the images are governed by the invisible codes and rules of the software environment. In so doing, the series seeks an answer to how the operational images are similar to yet distinct from representational ones. *Parallel I* (two-channel video installation, figure 7) takes a media-archaeological approach to the graphics of computer game imagery since the early 1980s to the present. In the now-arcaic arcade games of the 1980s, digital objects such as trees did not have any other

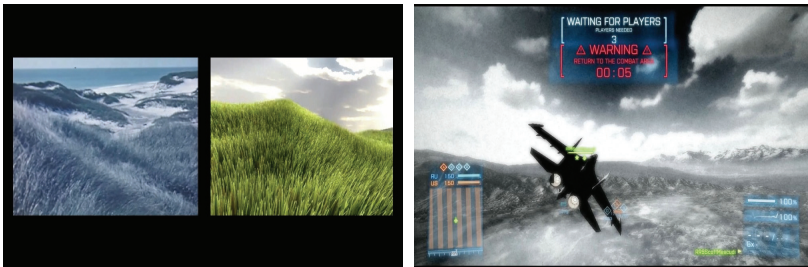
function than their background elements. The development of computer games since the late 1980s endowed these objects with certain functions, but they were made with the algorithmic variation of lines and rectangles. The dramatic advance of computer graphics during the last three decades has enabled digital trees to be barely distinguishable from the lens-based images of real trees in photography and film. Comparing the CGI-trees and simulated wind with the archival filmic images of the trees blowing in the wind, *Parallel I* raises the following question: as the digitally created and controlled objects seemingly similar to the photographic image become a new default of images, what is on the verge of disappearance in this transition of visibility? The answer might be found in the blank screen that intermittently appears on one screen in contrast to the CGI images on another. What disappears is more than the photochemical image itself. More precisely, it is a triangular relationship of camera, reality, and image, one that the indexical realism of photography and film traditionally assumed. The indexical realism was predicated upon the faith in reality, or, in the image's engagement with and inscription of reality, whereas the default value of computer graphics is the faith in the image, or, the image's perceptual realism and the self-sufficient and controllable rules that govern the world composed of the image. As Erika Balsom perceptively notes, Farocki's reflection on this shift of faith from reality to the image suggests that "the extensive integration of CGI and postproduction manipulation into otherwise live-action filmmaking allows for a diminishment of the primacy of raw capture that is unprecedented in the history of cinema."⁴¹⁾

41) Erika Balsom, "A World beyond Control," *La Furia Umana*, no. 23 (2015), <http://www.lafuriaumana.it/index.php/56-archive/lfu-23/358-erika-balsom-a-world-beyond-control> (accessed August 10, 2018).

In order to stress this point, Farocki calls an underlying principle of the simulated world 'a new constructivism,' with the following voice-over commentary: "In cinema there is the wind that blows and the wind blown by a wind machine. With computer images there is only one kind of wind."

While *Parallel I* contemplates CGIs in light of a new visual standard different from the cinematic image, *Parallel II, III, IV* investigate the ambiguities and ambivalences of the world that they create. In *Parallel II* (single-channel video installation, figure 8) reveals the ambivalence of the coexistence of groundedness and groundlessness, and of infinity and finitude. The space of computer graphics can be expanded infinitely in its software environment, on the one hand. But this algorithmic infinity is offset by the invisible finitude governed by the environment's invisible rules on the other, as the avatars of videogames encounter impenetrable walls, cliffs, and water: even the fighter of a first-person shooting game falls once it transgresses the invisible boundaries of its space. This ambivalence is varied in a key sequence of *Parallel III* (two-channel video installation), in which a virtual camera cannot penetrate a digitally synthesized stone column in the videogame's play mode, and the same camera can in the 'theater' mode. It is also repeated in *Parallel IV* (single-channel video installation), in which various human characters from well-known videogames (including *Call of Duty 4* and *Grand Theft Auto IV*) imitate human appearances, occupations, and behaviors but repeatedly perform absurd actions. On the one hand, the ambiguous lives of these characters demonstrate Farocki's observation of how operational images have become part of our world and subjectivity: "Stemming from the dubious notion that the computer is superseding earlier visual media, computer-generated animations

present themselves as exemplary images capable of representing sex and death.”⁴²⁾ On the other hand, the CGIs’ uncanny occupation of the real world suggests another ambivalence of the simulated world created by programmable codes and manipulated by algorithms and rules: the world constructed by the operational images is controllable under the software environment, but it also embeds its own limits, contingency, and uncontrollability unavailable from the physical or photographically registered reality.



[Fig. 7] Still from Farocki, *Parallel I* (2012), two-channel video installation

[Fig. 8] Still from Farocki, *Parallel II* (2014), single-channel video installation

4. Conclusion

This paper has demonstrated its rationale by remapping existing studies on Farocki’s works and his writings within the conceptual framework of the ‘post-cinematic conditions,’ and by investigating how his video installations are seen to critically cope with and reflect on these conditions. In so doing, it attempted to demonstrate how the post-cinematic conditions, which have affected both the proliferation of

42) Farocki, “Phantom Images,” 15.

cinematic video installations in the gallery and the popularization of what Farocki called the 'operational images,' are seen both to continue and differentiate themselves from the cinematic regime of critical filmmaking and regimes. This coexistence of the continuities and discontinuities is the reason that I have remapped and examined Farocki's video installations through the conceptual lens of 'ambivalence.'

Farocki's video installations challenge the assumption that the post-cinematic conditions mark a radical break with cinema for two reasons. First, they are grounded in Farocki's method of 'soft montage' as a technical and aesthetic operation for relocating his montage-based critical and intellectual thinking into the museum's material and spectatorial context. As it is materialized into double or multiple projections in galleries, the method is read as both extending and departing from the film-based idiom of montage. Second, Farocki's installations investigate the multifaceted ambivalences of the operational image as the kernel of the conditions by summoning it up in different ways. By refashioning an array of cinematic artefacts—documentaries, propaganda films, and industrial films—that remained hitherto marginal in the standardized definition of cinema, and by redistributing the techniques of cinematic montage into the technical, formal, and experiential dimensions of media installation, these pieces rewrite the history of cinema and reinvent the cinema itself outside its institutional home, the movie theater. This echoes Blümlinger's brilliant insight into Farocki's video installations, in which "cinema always represents a field of reference, even when they are largely in dialogue with utilitarian pictorial worlds." She writes, "his work shows to what extent, even within geographic spaces that have been entirely virtualized, digital images and automatic 'vision machines' are often oriented toward

anthropomorphic forms, abiding by the reality of human vision.”⁴³⁾

Insofar as Farocki's installations restore the space for aesthetic operation and contemplation to the operational images devoid of aesthetic qualities and contemplative gaze, they return to the task of animating life that has been pursued by the cinema since its birth. His fascination with the origin of cinema in his investigation into the technical and ontological dimensions of the operational images, I argue, demonstrates not merely another ambivalence of the post-cinematic conditions that his media installations engage, but also his media-archaeological stance that they maintain: as he compiles the forgotten or excluded history of the representations of factories and laborers from the birth of cinema to the contemporary cinema in *Workers Leaving the Factory in Eleven Decades*; and as he compares the representations of prisons in the early and classical cinemas with the surveillance images of a prison in California in *I Thought I Was Seeing Convicts* (2000). It is highly suggestive that his unfinished project, which he embarked in 2014, is about revisiting Marey and Muybridge in the context of the genealogy of motion-capture technologies that ends with the digitally animated characters in James Cameron's *Avatar* (2009).⁴⁴⁾ This project illustrates that Farocki's scrutiny into the operational images was fundamentally linked to how they would reconstruct and reanimate human body and life, and that this question demanded him to revisit and critique the relationship of body, technology, and industry in the history of cinema.

43) Blümlinger, "An Archaeologist of the Present," *e-flux*, no. 59 (November 2014), <https://www.e-flux.com/journal/59/61092/an-archeologist-of-the-present/> (accessed August 10, 2018).

44) For a brief summary of this project, see Anselm Franke, "A Critique of Animation," *e-flux*, no. 59 (November 2014), <https://www.e-flux.com/journal/59/61098/a-critique-of-animation/> (accessed August 10, 2018).

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