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Haunting surveillance: Foregrounding the spectre of the medium in CCTV and military drones

Paula Albuquerque

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Fig. 1: Beyond the Violet End of the Spectrum – Visual Documents in the Age of CCTV and Drones – solo exhibition by Paula Albuquerque at Bradwolff Projects Gallery, Amsterdam, 2018.

Artistic research as *modus operandi*

Methodologically, this artistic research project manifests in two realms: theory-based research and art practice. It involves a theoretical research to study the social and political relevance of documentary evidence produced by

CCTV and military drones. This is developed in parallel with a hands-on experimental approach where I make films and installations using surveillance footage. To structure this dual research I adopt a historical perspective that observes disparities and continuities between the first mechanical recordings of spectral apparitions – the nineteenth century analogue genre of spirit photography – and the contemporary digital video surveillance media that still create similar visuals. This will be developed alongside a discourse analysis of media studies scholarship tackling the fact-/fake-making potential of visual media. Finally, I engage with philosophy, namely hauntology to foreground aspects pertaining to the manifestation of ghostly visuals that may impact on social profiling.

Transversally, yet of relevance to these complementing analytical methods, I introduce the artistic component of my research, which consists of practice-based experiments using technologies of surveillance and their media-specific output. These include still images and actual footage as visual material for making artworks. Through this process of art production I analyse how digital surveillance materials, and documentary evidence, are constructed. As example of experiments to get a deeper knowledge of medium-specific modes of image production, I test the technical limits of interface(s) to uncover their *potential* as non-transparent mediators and as actual creators of imagery. I may at points subject CCTV and drone cameras to extreme conditions to provoke abnormal behaviour, triggering digital artefacts, which may provoke the emergence of ghostly imagery. The resulting artworks are made of the footage created during practice-based experiments and incorporate aesthetics inherent to malfunctioning media and their breaking points, including mismatching colour codes and malformed figures. *Beyond the Violet End of the Spectrum – Visual Documents in the Age of CCTV and Drones*, was the title of my solo exhibition at Bradwolff Projects Gallery in Amsterdam in May 2018, where the present project was shown to the public for the first time. This exhibition was devised as site of research where several steps in my experiments were conducted through the making and exhibiting of artworks with CCTV and military drone footage, and where instances of spectral imagery formation could be experienced by the visitors. I will come back to this particular mode of research later in the text, after laying out this project's conceptual framework in some detail, which extensively draws from the history of analogue means of spectre visualisation.

The spirits of photography

To compare contemporary digital surveillance media with analogue photography and its documentary limitations, which have since been identified and studied at length, it is of relevance to look back at the dawn of mechanical image production. Easy to manipulate, this mode of analogue visual production fostered nineteenth century spirit photography's polemic practice of allegedly portraying ghosts. As Esther Peeren and Maria Del Pilar Blanco point out in the Introduction to *The Spectralities Reader, Ghosts and Haunting in Contemporary Cultural Theory* Roland Barthes already claimed in *Camera Lucida* that photography establishes 'a new relationship to death' since its inception. This is all the more so in the particular case of spirit photography, whose object was the dead. Barthes adds that '[i]f death was central to pre modern life, in modern life we exchange the space of death with our technologies of repetition.'^[1] With spirit photography it was believed that past lives could be photographed while in presence of the living, which implies that the dead could once again exist as images. The exposed light-sensitive emulsion with the aid of a fixer gave the departed a post-mortem existence. The resulting photographs served as material evidence of the presence of lost loved ones, which haunted the material reality of the living.

To further study this haunted reality where past presences exist alongside and are simultaneous to present presences, I turn to writings about hauntology and spectrality tracing the conceptual figures of the ghost and the spectre as key analytical tools building on Jacques Derrida's writings.^[2] In their hauntology reader, Peeren and Blanco draw attention to the evidence that within the field of cultural critique of the 1990s, the term spectre replaces that of the ghost, as it is considered more suitable to name the manifestation of visual *non-present presents*. Spectrality, according to Peeren and Blanco, 'specifically evoke[s] an etymological link to visibility and vision, to that which is both looked at (as fascinating spectacle) and looking(in the sense of examining)'. Such a term has been deemed more appropriate when employed in the analysis of conceptual phenomena beyond strictly those of the ghostly shapes of past lives.

A conceptual metaphor, Mieke Bal suggests, differs from an ordinary one in evoking, through a dynamic comparative interaction, not just another thing, word, or idea and its associations, but a discourse, a system of producing knowledge. Besides fulfilling an aesthetic or semantic function, then, a conceptual metaphor 'performs theoretical work'.^[3]

This quote is particularly enlightening when pointing to the possibility to use the figure of the ghost as a theory-making tool. I am not particularly concerned with proving or disproving the existence of ghosts and their apparitions, nor in discussing my beliefs in life after death inside or outside of religion. I am instead engaging in the study of the ghost's figurative potential to think media that have been conceived with a documentary function but apparently possess the inherent ability to create visualisations of a spectral nature.

Used as a tool for thinking media, I agree with Peeren and Blanco's claim that a hauntological attempt to conceptualise instances of meaning production that can only be sensed as ghostly presence cannot be called a science, or even a method, as the ghost or specter can never be fully understood or known. In fact, '[o]ne does not know: not out of ignorance, but because this non-object, this non-present present, this being-there of an absent or departed one no longer belongs to knowledge.'^[4] So, once more paraphrasing Peeren and Blanco, the ghost as conceptual metaphor deals with the 'tangibly ambiguous', that which manifests and can be felt but is not absolutely graspable.

After Derrida's *Specters of Marx*, the ghost as analytical tool no longer requires scientific proof of existence. It has become a conceptual metaphor that uncovers unacknowledged social and political phenomena. Specifically for this project, it is useful in the study of surveillance and algorithmically-determined preemptive measures. It adds a perspectival layer to the analysis of the media impact on largely unaccounted for processes of subjectification.

At the end of the nineteenth century, after spirit photography emerged, certain streams of both philosophy of science and rational thought embraced forms of thought that could manifest and be employed outside of the realm of traditional scientific methods solely based on experiments and observation. Alongside naturalism and positivism there was a growing focus on the realm of irrationality and the layers of meaning it may harbour. Psychology and psychiatry were gradually being awarded more scientific relevance as forms of gaining insight into those less measurable manifestations of the human psyche. The existence of phenomena outside the realm of empiricism and scientific methods of observation was acknowledged and pursuit for its evidence promoted. As Margarida Medeiros points out: '[t]he very notion of fact as stated within a naturalist philosophical and scientific context, as well as the notion of "observable", were being discussed by philosophers and scientists', a condition that Medeiros sees as underlying the expansion of spirit

photography allegedly documenting the presence of ghosts and ‘accepted as a demonstration of the facts of “another world” or the existence of “invisible matter”.’[5]

At their inception, audiovisual technologies have been conceived to commemorate and archive moments and events of specific relevance. This is allegedly the reason why society has embraced the new medium; due to its documentary genesis. But, ontologically, they also mark at each capture the passing of time and ‘the entry of death into the world of the living’.[6] Tom Gunning has written extensively about the hauntology of modern media, with photography at its core and spirit photography as one of the most notorious examples of the capacity to harbour and fixate ghosts, but also to create our own perception of these phenomena. The following quote deconstructs the notion of a visualised ghost as a fleeting manifestation:

[w]hat does a ghost look like? A ghost puts the nature of the human senses, vision especially, in crisis. A ghost, a spirit, or a phantom is something that is sensed without being seen. But this does not necessarily mean that ghosts are more easily heard, smelled, or felt ... In fact, when encountering a ghost, the senses may contradict themselves rather than cohere.[7]

Gunning draws attention to the fact that ghosts are porous entities, not solid in their materiality and thus not entirely graspable. They confuse our senses as ‘they can be heard without being seen, smelled without being touched, seen without registering a tactile presence’.[8] The presence of the specter is somehow sensed but one cannot prove it empirically by solely relying on the five senses. This represented a great challenge for the positivists of the time.

The pioneers of spirit photography produced proofs that only the machine, the photographic camera, could bring forth – outside of empiricism proper. The nineteenth century photographer William Mumler produced the first material spirit photograph in 1861, when developing a self-portrait taken while alone at his Boston studio and where a second figure could be seen on the plate. Quickly spreading to Europe, this practice strived until the 1930s owing to the kinship with the zeitgeist. Paraphrasing and quoting Rosalind Krauss, Alison Ferris, who curated *The Disembodied Spirit* at the Bowdoin College Museum of Art, draws attention to the fact that spiritualism had already entered popular discourse and photography. ‘For photography, Krauss reminds us, was the first available demonstration that light could indeed exert an action ... sufficient to cause changes in material bodies.’ Still building on Krauss’ thought, Ferris further reminds us that the photograph

allowed material reality to become ‘intelligible’. The trace left on the emulsion by an object’s reflection brought about the belief that this constituted a demonstration of the existence of ghosts. The evidence that the photographic process could capture spectral imagery that could not be perceived by the human eye brought science and spiritualism together. Ferris adds that ‘for Krauss, the semiotics of spiritualism and early photography, both invested heavily in the physical realisation of the trace, coincided powerfully in the nineteenth century’.[9]

Similarly inspired by Krauss’ take on indexicality in early photography, namely in her book *Tracing Nadar*, Gunning explains why the technical process of photography was culturally associated with occultism. For most people, there was a phantasmatical dimension to the existence of the body (or the prolonging thereof) in multiple images.[10] There was a specific social function for spirit photography in the United States, which explains its growth at the hands of Mumler and others who followed in his footsteps. According to Louis Kaplan’s article ‘Where the Paranoid Meets the Paranormal: Speculations on Spirit Photography’ having emerged during the painful era of the Civil War, spirit photography helped those coping with bereavement. Visualising the presence of the dead on the plates made many believe they could communicate with past lives, since they were still manifestly present, both *seen* and captured by a mechanical process.[11] These were European descendants, white men and women, leaving coloured people out or having them represented as mediators between the living and the dead. Some Native American faces were used to symbolise the spirit world, but were not portrayed as belonging to the material world of those being photographed.

At the end of his article Kaplan draws what he calls ‘hauntological conclusions’ while reflecting on Derrida’s *Specters of Marx*, which he defines as ‘a reading of the spectro-poetics of the mid-nineteenth-century Communist manifest, Karl Marx’.[12] These conclusions mostly focus on looking beyond the presence of the non-present dead bodies at the instances of evidence attributed to the mediation of photography. Hauntology, as an ontology that follows ‘the logic of haunting’ appears, according to Kaplan, as adequate to study the social impact of spirit photography, mainly this photographic genre’s (haunting) capacity to generate ghosts. Kaplan rounds up his argumentation by referring to Derrida’s claim that ‘ghosts are everywhere where there is watching’.[13] Taken literally, this notion applies not only to photography in general but also to the constant observation of surveillance and the reliance that is put into its main function. By focusing primarily on

evidence produced for preemptive action against deviations from the law, several studies leave out the haunting reality of visual media's meaning-production capacity. My projects draw attention to the ghost-making capacity discovered with spirit photography, which is still prevalent in contemporary media even if hardly acknowledged.

Criteria to ensure a faithful representation of material reality were based on photography's inherent quality to embody an object's trace, the index of their material referent. This translates as the presence of the object's reflection on the photographic emulsion, which differentiated between real and fake evidence. In a similar line of thought as that of André Bazin and Georges Didi-Huberman's ontologies of photography, Krauss claims that photography has a comparable status to that of the death-mask, as both create ways to commemorate death by materially fixating the physical dead body, a form of archiving that preserves the memory of the person after he/she passes away. Krauss draws our attention to the fact that both are 'indexically produced forms' that 'resonate with the sense that they have been cast (whether physically or optically) from life'.^[14] However, in spirit photography, Ferris claims, basing her words upon Gunning's writings, the image one sees is not mandatorily that of the loved dead one but an image used by that same past life for communicating with the world of the living. As Gunning points out, spirit photography is haunting not only because it testifies to the presence of the dead person but specifically due to the absence of a material referent. The photographic image of a ghost reminds one of the appearance of past bodies, without being *them*. Ferris adds that '[t]he direct link between the object and the representation of the object is disrupted and obscured, and each is made to operate instead through the fuzzier and inexact lens of "recognition"'.^[15] As Ferris points out, in the case of the ghost and also in spirit photography, one recognises a presence that manifests in the intersection between visibility and invisibility, life and death, past and present.

To conclude the present section specifically about spirit photography, I once more turn to Medeiros as she underlines Krauss' observation of Nadar's approach to photography as an index tool linked to a psychological view of photographic experiments and their ability to represent the invisible akin to a mystical tradition:

For the early 19th century, the trace was not simply an effigy, a fetish, a layer that has been magically peeled off a material object and deposited elsewhere. It was that material object became intelligible. The activity of the trace was understood as the manifest presence of meaning.^[16]

Positivism and metaphysics were brought together by spirit photography in the conception of the photograph as a factual document – between science and spiritualism and not subject to empirical analysis. Fast forwarding almost two centuries, the notion of fact being in crisis, the disparities and continuities between analogue and digital documentation may add in challenging surveillance footage as the maker of operative images used as evidence.

Ferris claims that, even though ghosts still surround us and are constantly present, they are not observed with the same engagement by scientists today as they were by nineteenth century's spiritualism and the emerging discipline of psychoanalysis. As Ferris points out, these analysed the manifestations of spirits by using telepathy, spirit photography, and by means of medium-led séances. Today, in Ferris' own words, 'the representations of ghosts ... open the way for new understandings of vision and "reality" in our contemporary, digitized, hypermediated world'.^[17] Intriguing as this citation may be, one must wonder how state-of-the-art visualisation techniques hold on to their status as fact-checking evidence. Even if nowadays the criteria based on the existence of an analog referent have been disregarded by the so-called digital revolution and the advent of the 'immateriality' of digital data, computer forensics showing that forms of digital materiality do exist also identify the presence of digital indexicality. The latter manifests as 'scars' left on digital platforms by the production and transmission of visual data.^[18] Even if spirit photography has no corresponding referent in the material world, the mark left on the plate's light-sensitive emulsion functions as an indelible index – albeit a deictic one: a proof that the spectre or other light phenomena was present at the moment of the capture.^[19] One could argue that the ghosts created by modern surveillance media may also leave material traces that indicate the moment and place of inscription on a digital platform.

Contrarily to analogue indexicality, the study of criteria to analyse digital imagery of ghosts is scarce. This may be since the material presented as proof is scattered over the internet and collected by enthusiasts who do not employ scientific methods of research. The sources of imagery I observe and attempt to map emerge from a sea of uncategorised initiatives that stream these materials online. To describe my approach to collecting sources and studying these materials, I will now intertwine theory with descriptions of experiments carried out as artistic practice to investigate contemporary manifestations of spectral imagery in digital visual surveillance. For this project I stage custom-designed experiments to look for digital index-producing processes specific

to current surveillance media. In some of these I (re)create conditions where spectral imagery may get created by CCTV cameras and drone vision. Before moving on to the description proper I would like to emphasise that I perform artistic practice as a necessary system of knowledge production developed in parallel with, but always complementary to, theoretical research. Besides the aesthetic motivations supporting the decision to use artistic methods, the discussion of which exceeds the scope of the present paper, the role of these experiments is to find digital media's documentary limitations and their capacity to produce visions (due to 'malfunction' or actual inherent potentialities). Rather than observing phenomena after the fact as in most other art-related studies, I create conditions that trigger the occurrence of these phenomena so as to be able to analyse them.

When considering the media of CCTV and drone vision I realise they are increasingly used in producing footage serving justice departments in crime investigations, even if much of this material is knowingly not entirely reliable. For example, light shining sideways on any camera lens may form a phantasmagorical image beyond the simple flair. Similarly, defective exposure erasing facial features reduces a person to a shadow. The first may be dismissed as an inconsequential result of malfunction or medium-determined short-comings, while the second may misidentify someone. Commonly perceived limitations as faulty exposure and transmission errors – if internet-based – are inherent to digital media's functioning and should be considered when relying on their footage as documentary evidence. Moreover, tech-savvy users may manipulate it in undetectable ways as shown by videos circulating online allegedly documenting manifestations of paranormal activity.

As an example of some of the processes I employ, I map online archival efforts of enthusiasts who collect and categorise spectral imagery (originally spotted on surveillance footage) widely available on the internet, i.e. YouTube. These include alleged visualisations of paranormal activity, including 'shadow figures' and poltergeist. By spending extended periods of time observing these images I have realised that a large majority is in black and white, a smaller amount in a green tone given by night vision cameras and, finally, a very reduced amount is in colour. The aesthetics of most ghost sightings, however, appear quite similar across continents and cultures. Some of these practice-based methods and others have been applied during the previously mentioned solo exhibition of mine in May 2018.

The exhibition as site of research

The exhibition realised at the onset of the present research was put together with very simple means. Using the spatial features of the gallery, it was intended as a space for research and not as a formal exhibition of finished objects: if anything, this exhibition was meant to function as a site where works were still shape-shifting and prime-matter was being added to the art pieces.

If in the nineteenth century people believed they saw ghosts portrayed by photography because they trusted the transparent mediation thereof, nowadays, after audiovisual media have lost their innocence, there seems to remain a similar trend in identifying the presence of the spectres – of the criminal or the terrorist – when observing surveillance footage. Instead of researching the potential of the medium to create certain stereotypes that may not correspond to reality, as well as the social and political implications thereof in order to devise an exhibition, I inverted the process. Therefore, I began by publicly sharing the materials I made artworks with, together with all the processes and approaches I found along the way. For this purpose, I spent several days at the gallery during the exhibition so as to work on the pieces and to exchange ideas with visitors about the progress of these experiments.



Fig. 2: Stills in Motion (2018) by Paula Albuquerque, room-size camera obscura.

I exhibited three artworks in the gallery space. The first consisted of a life-size camera obscura, built by closing off one of the gallery rooms at Brad-wolff Projects. Here I created the conditions for the outside imagery to be

projected on the wall opposite the window. In this process, as old as caves, the light penetrating the dark enclosure through a small round fissure I cut in the window allowed the outside environment to be perceived upside down, in full colour and in motion inside the gallery (see Fig. 2). During the exhibition, I also used the camera obscura as a pinhole, by exposing black-and-white negative photo paper and developing it in the same space. Longer exposures registered the movement of people and animals as light traces or even as shadowy figures, suggesting otherworldly phenomena. This photographic process took place every week as I exposed, developed, and fixated the images in the camera obscura during the gallery's opening hours.



Fig. 3: Stills produced inside the camera obscura during the exhibition *Beyond the Violet End of the Spectrum* (2018).

The prints resulting from this primitive photographic process were hung on a weekly basis above a table with research materials. At the end of the on-site research as the exhibition approached its closure, I had produced a selection of 20-30 of these images, portraying different light conditions and movement phenomena that had been captured by this site-specifically constructed visual surveillance apparatus (see Fig. 3). This simple analogue photographic process had produced imagery of ghostly nature. By observing how moving bodies got portrayed as fleeting humanoid figures resembling spectres, it is possible to conclude it is our mental deconstruction of the apparatus together with our knowledge of the language of photography that stand in between us and the ghost.

Of particular interest to my epistemological endeavours during the exhibition was the attempt to assess the relevance of such imagery for knowledge production. Defying our senses, the ghost's ontology defines it as existing between the material and the immaterial, the world of the living and that of the dead. Gunning chooses to focus on the phenomenology of the ghost when analysing their 'mode of being'. Thus, not so much what ghosts are but how they appear to and are perceived by the living. Gunning claims that '[t]he mode of appearing becomes crucial with ghosts and spirits because they are generally understood, by both believers and skeptics, to be apparitions rather than ordinary material objects.'^[20] How do people know they are seeing a ghost? What does a ghost look like? How is it portrayed? Further paraphrasing the author, the mode of being of the ghost was given in literature and early painting by aspects of decay or other visual signs of death, of being an actual corpse. These visuals are still prevalent in the digital materials I work with when engaging with questions about the representation of ghosts and their image language in contemporary visual culture, as I will now describe.



Fig. 4: *Black & White, Green, Colour* (2018) by Paula Albuquerque.

The second artwork presented during the exhibition at Bradwolff Projects in May 2018 was the film *Black & White, Green, Colour* where I used a collection of CCTV images allegedly capturing ghosts and other unidentifiable visual phenomena created either by means of defective exposure, intentional montage, or other less visible manipulation processes (see Fig. 4). The material I collected for this film has been edited into a timeline where ghosts, shadow figures, floating objects, and other spectral 'sightings' are made available for online perusal. When observing the material, I realised that some of the spectral visions may have been produced by simple malfunctions. These could be

owed to the medium's image interpretation processes that possibly create ghostly imagery (similarly to how white noise emerges in sound production).

When inspecting operative images produced by CCTV through the lens of hauntology, I became aware of how similar these camera's ghosts are to their analogue counterparts. The appearance of ghosts in spirit photography is that of see-through humanoid shapes that seem to float within the frame. This is a form of representation that has its roots in literature and painting traditions, and corresponds to what Gunning calls an iconography. This visual vocable refers to a sensory experience that transcends the five senses we rely on when engaging with the material world. When observing a photograph where the spectre is captured and rendered visible an ontological event takes place that brings two conflicting worlds together and fixates them on light-sensitive emulsion. As Gunning writes, 'Spirit Photographs portray a fissured space, one that allows visitors from another dimension to peek through, hovering within (or beyond), the space occupied by the "normal" figures'.^[21] The same portrayal of this 'fissured space' occurs in CCTV accounts of ghost sightings.

Instead of simply being present, the phantom occupies the ontologically ambiguous status of 'haunting' – enduring and troubling in its uncanny claim on our awareness and sense of presence yet also unfamiliar and difficult to integrate into everyday space and time.

Gunning's citation draws attention to the fact that ghostly manifestations still haunt a contemporary daily experience of visual materials and question the infallibility of their documentary value. Interestingly, Gunning establishes a parallel between the modern condition of being surrounded by virtual audiovisual production and what he calls 'earlier models of the relation between consciousness and the cosmos that drew on magical or supernatural analogies'.^[22] Gunning's interest relies in studying the 'cultural nature of modern media' that produce imagery that does not fit into notions anchored on traditional realism. When comparing analogue photography to CCTV imagery, what becomes immediately apparent is that the ghost has not changed in appearance in almost two hundred years. One could say this owes to modes of (light) exposure which are still very similar to those of early photography.

Gunning's main focus to study a ghostly ontology and phenomenology in which the medium of photography becomes the object it portrays by attempting to erase its own stance as mediator takes spirit photography as a case in point where the medium becomes the message. In the specific case of

our study, spectral imagery foregrounds surveillance technology as media and the image production implied by its mediation. As the above-mentioned modes of exposure have not yet changed since the dawn of photography, CCTV cameras are calibrated to properly show the facial features of those with white skin but also simultaneously blur identity-defining traces of all others. The direct consequence of such technologies is the creation of criminal subjects with darker skin tones, who will look very much alike when captured by these cameras. The spectre of the misrepresentation caused by these cameras has very direct consequences for the mistaken identification as potential criminals of those with less pale skin.

As Gunning sees it, the photographs themselves consist less of evidence of the existence of ghosts but of the presence of the medium of photography itself, for

[i]n these images, we no longer see through the photograph but become aware of the uncanny nature of the process of capturing an image itself. Our gaze is caught, suspended, stuck within the transparent film itself. [23]

In contemporary video surveillance, the acts of observing, assembling, and transforming the images of captured ghosts constitute a strategy for opening up the black box where processes of image-making paired with hidden power-determining agendas are at play within the context of operative images. This may help uncovering the spectre of the medium itself – the ghost in the machine.

The third artwork presented during this exhibition was an installation displaying an archive of military drone footage edited together with game run-throughs, the latter making use of live strike footage (see Fig. 1). The installation titled *From Above* was shown on five 21” flat screens mounted onto grey boxes that were placed on the ground to force the viewer to look down onto the imagery. What the public saw were military drone interfaces, as drone pilots and sensors do during air strikes or gamers when emulating similar scenarios.

In this collection, where the actual explosions have been removed, the representation of identifiable traits of human bodies took central stage. As examples, one could observe elongated shadows distorting the portrayal of individuals observed in very sunny Middle Eastern countries; body heat translating surveilled people into malformed figures on the screen, through the use of thermal vision to look through building walls; ghostly imagery generated by night vision. These images display technical features that are

used for identifying suspects but that, in several cases, have been unable to differentiate them from most other civilians. Even though aware of surveillance experts on the ground contributing to the identification of potential terrorists, one cannot help but wonder how the actual dispositif contributes to the high number of civilian casualties caused by drone strikes. To exemplify how contemporary surveillance subjectifies those whose image they capture, I briefly turn to the study of military drones' ability to create their own target in border zones.

In *Life in the Age of Drones*, Lisa Parks and Caren Kaplan's introduction draws attention to the impact drone warfare has on race-determining perception and subjectification. Curator Meredith Malone defines the drone within the context of contemporary warfare as a 'vision machine' that 'operate[s] through images while also producing images that have the power to effect changes in modes of perception that determine our thoughts, feelings and actions'.^[24] Their screens interact with humans during the strikes, and software algorithmically operates pattern recognition dictating conditions for and determining strike feasibility. The reliance on the visuals offered by the screen raises 'urgent questions regarding the conduct of war, ethics, human agency, and the changing meaning of proximity and distance in screen operations' in Malone's words.

Establishing a parallel between drone sensors and the imagery they work with and Harun Farocki's double-channel installation *Eye/Machine III* (2003), Malone points out that, in drone strikes, we are dealing with operative images. As Farocki exposes, these are images that are not created for aesthetic/poetic reasons but uniquely 'objective, technical tools inciting action'. Or, as Malone further explains 'instead of merely representing things in the world, machines and the images they produce begin to "do" things in the world'.^[25] The drones are not mediating but creating terrorist subjects by means of machine learning and their interface ruled by A.I., with humans at both ends. If we are to agree with Jonathan Beller's claim that all programming is at its root racist and sexist, the algorithms defining the computer-imaging perceived by pilots and sensors should be considered as active tools in discriminatory practices.^[26] My installation particularly compares the aesthetics of drone imagery with those of ghost sightings on CCTV, the latter very reminiscent of spirit photography. When comparing analogue processes with machine-learning digital technologies, unearthing the medium-specific visual abilities of the interface is key to understanding the social and political impact they may have. If spirit photography made ghosts real, is it

not possible to consider or infer that CCTV contributes to the creation of the criminal on the screen and drone interfaces to the production of the terrorist, at least in some cases?

Final comments

Recapitulating, I look at specific forms of materiality created by new digital media and analyse, by means of artistic experimentation, how to expose the spectre of the medium. Through combined methods of filmmaking and post-internet art production I gain knowledge about these technologies' capacity to create both documentary evidence and forfeits, including the production of deep fakes by A.I. and other algorithm-driven entities. I explore the boundaries of image-based representation – how surveillance cameras film the object and eventually create ghostly visions if malfunctioning – but I also force the medium to produce glitches and other noise to retrieve breaking points, while studying standard algorithms and pattern discrimination. As mentioned before, I especially wish to explore their potential for creating abstract imagery by causing digital artefacts to occur and expose the medium's potential for creating visions. As I demonstrate by means of artistic experimentation, if these were not inherent to medium-specific modes of functioning, they could not be provoked (and repeated): a case when malfunction either becomes an asset and/or a creative feature. It is in these ghostly visuals that I believe the potential for innovative aesthetics resides but also the danger of creating fake or at least misleading imagery.

Beyond analysing the difference between mediated and material reality, the artworks I make focus on exploring the aesthetic potential for artistic creation. These include experimental techniques such as assembling misleading narrative lines, constructing an analogue life-size pinhole to study and record light phenomena, building an archive of relevant drone footage for public perusal in exhibition locations, analysing the non-discriminatory potential of algorithms, and researching other possibilities to engage with the analytical deconstruction of surveillance technologies.

My next solo exhibition, scheduled for the beginning of 2020, will take the present research further as I get in touch with the Dutch police and the army to gain more knowledge about surveillance optics, military drone hardware, and simulation software. I wish to map the range of correspondences

between what is identified on the screen as being the enemy, which is normally a very unstable humanoid figure, with the very specific individual targeted as a terrorist for immediate execution. Beyond the limited scope of accurate visualisation and the political agendas, the human-screen interaction will also be taken into account when studying the formation of these operative images. After all, they require stabilisation, observation, and interpretation before action is to be taken upon the targets produced by the camera and recognised by the algorithms to justify the strikes. This interaction between the human and A.I. needs to be addressed, as the complex reality of pattern recognition seems to frequently fail and cause a very high number of civilian casualties in (US) drone strikes.

Having chosen spirit photography as historical reference, I have been able to highlight a continuity between mechanical analogue and electronic digital visual media as far as light exposure modes go. As Florian Cramer identifies, when mentioning Jean-Luc Godard's boycott of Kodak together with other filmmakers for being racist, analog film underexposed black actors.[27] This is still the same case with digital video and, consequently, with CCTV and webcams whose documentary stance needs to be challenged.[28] To briefly mention the disparities, these are introduced by the algorithms determining the behaviour of digital media that did not yet exist at the time of spirit photography. These capture and process data by identifying patterns and constructing categories. As for continuities, however, gender and race discrimination are still prevalent in visual media modes of representation as they are embedded in these machine-learning building blocks, according to Kate Crawford.[29]

As Beller claims in *The Message is Murder*, violence is inherent to digital media just like racism has always been at the basis of the photographic medium.[30] Questioning the hidden layers of the apparatus from a hauntological perspective and with a hands-on approach will bring me closer to exposing the ghosts in the machine, and hopefully contribute to a more careful observation of the imagery that is used at present as the most reliable means of identifying alleged suspects of deviant behaviour.

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Notes

- [1] Peeren & Blanco 2013, p. 200.
- [2] Derrida 2006.
- [3] Ibid, p. 1.
- [4] Ibid, p. 21.
- [5] Medeiros 2015, p. 1.
- [6] Ibid, p. 201.
- [7] Gunning 2007, p. 102.
- [8] Ibid.
- [9] Ferris 2017, p. 49.
- [10] Ibid.
- [11] Kaplan 2003.
- [12] Ibid, p. 27.
- [13] Ibid.
- [14] Ferris 2017, p. 52.
- [15] Ibid.
- [16] Medeiros 2015, p. 2.
- [17] Ferris 2017 p. 45
- [18] Albuquerque 2018. My book *The Webcam as an Emerging Cinematic Medium* discusses the issue of digital indexicality in chapter 5.
- [19] I here refer to the spectre as previously described: the image chosen by the past life to communicate with the living.
- [20] Gunning 2007, p. 104.
- [21] Ibid., p. 99.
- [22] Ibid., p. 100.
- [23] Ibid., p. 112.
- [24] Malone 2017, p. 7.
- [25] Ibid.
- [26] Beller 2018.
- [27] Cramer 2019.
- [28] Vox Magazine has made a short educative video about the history of photography and racism that highlights the specific choices inherent to the design of the medium of photography and film, which still prevail (<https://www.youtube.com/watch?v=d16LNHIEJzs>).

[29] Crawford 2016.

[30] Beller 2018.