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Seeing like a surveillance agency? Sensor realism as aesthetic critique of visual data governance

Rune Saugmann ^a, Frank Möller^{a,b} and Rasmus Bellmer^b

^aPolitics, MAB, Tampere University, Tampere, Finland; ^bTampere Peace Research Institute, Tampere University, Tampere, Finland

ABSTRACT

Despite the centrality of visual data creation and analysis in security-related governance not only of heavily surveilled battlefields, but of fields as diverse as petty crime, urban mobility and migration, the sensors and systems producing visual data used for security purposes are rarely themselves the focus of close scrutiny. This is surprising as photography, IR, and science and technology studies literature all point towards equipment as being agential and transformative. We argue that in the photo-series *Heat Maps*, the Irish photographer Richard Mosse opens up for a much-needed discussion of visual data production by appropriating equipment normally used for surveillance. We develop the idea of sensor realism by considering Mosse's *Heat Maps* in dialogue with other aesthetic and photographic traditions and concepts. By sensor realism, we mean an aesthetic realism based on the visual replication of technologies used in visualising and governing an issue, rather than on a photorealistic depiction of an issue. Sensor realism, thus, is the critical artistic appropriation of visual data production equipment, aesthetics and practices, and allows viewers to scrutinise how visual data production reassembles and formats that which it observes. We discuss the politics of sensor realism and argue that used as a critical aesthetic it can reveal how visual data production practices are productive and enact ways of seeing that prefigure visual governance by structuring how reality is made available for governance in visual data. But due to its appropriation of sensing technologies, it always risks confirming the practices it seeks to critique.

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Introduction: visual governance, artistic critique, and data production in the sensor society

What can we learn about the visual data production permeating security governance from engaging with artists?¹ Do visual artists, when copying state surveillance practices, criticise these very practices? Can artistic work enable citizens to see society through the prosthetic technological eyes of the government agencies acting in their name? What kind of political intervention takes place when artists cultivate what we theorise as *sensor realism* – a post-

CONTACT Rune Saugmann  rune.saugmann.andersen@tuni.fi

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photographic² aesthetic that can be used as a strategy with which to engage, and make viewers engage, with the politics of visual data production? These are the questions animating this paper's concern with artistic photography.

Over the last couple of years, documentary photographers, photojournalists, visual artists and citizen photographers have photographed migrants and refugees³ in abundance (see *British Journal of Photography*, 2016). One of these photographers is Richard Mosse. In his prize-winning photo and video series *Incoming* and *Heat Maps*, Mosse uses extreme telephoto thermal camera technology capable of recording body heat from long distances. We argue that, by visualising the technology used by European authorities to monitor, control and police migration, this technique makes visible what escapes from standard photojournalistic representation (rather than merely depicting migration or migrants' plight). By engaging with *Heat Maps*,⁴ we explore what understanding Mosse's photography as sensor-realistic reveals about the European border authorities' approach to both the privacy of migrants in particular and, on the more general level of concerns addressed across this special issue, about how critical aesthetics can illuminate agency and politics of the technologies and practices that, through data production and visualisation, constitute visual governance.

Our main concern is the development of the concept of sensor realism, which we conceptualise as an aesthetic realism based on a post-photographic epistemology. In sensor realism, the 'real' encompasses the data production and visualisation technologies used in visualising and governing an issue, in contrast to the photorealistic ideal of a reality external to photography that is revealed by depiction aiming at 'the highest degree of representational verisimilitude possible'.⁵ Sensor realism shares with photojournalism the ethos of realistic documentation but twists this realism towards the post-photographic or techno-visual, thereby offering a vision of reality as it takes place in sensing and in the production and visualisation of sensing data. Sensor realism thus designates a visual realism specifically engaging the data production and visualisation practices of sensor societies by depicting with a high degree of verisimilitude how sensor data is visualised and makes reality available to sensor observers and operators. Sensor realism opens up for discussions the relationships between reality, sensing, sensor data, data processing and visualisation, and security practice, and the often mutual reconfigurations happening in these relationships.

We develop the notion of sensor realism through a reading of Mosse's depiction of how western states' migration authorities visually encounter and enact migrants, reading *Heat Maps* in contradistinction to well-known aesthetics like photorealism and hypermediacy, genres such as photojournalism and aftermath photography, and sensor-realist artworks. The sensor-realistic aesthetics in *Heat Maps* means that it neither shows how migrants appear to the unaided eye, nor redundantly repeats how they mostly appear in public media. And while migration authorities do not share their visual encounters with and enactments of migration with citizens, a point of sensor-realistic art is precisely to do so. A sensor-realist aesthetics can thus expand the limits not only of representation but also of visibility, and situate photography in a new aesthetic relation vis-à-vis reality and politics. It avoids working within the established and largely photorealistic parameters of photojournalism, parameters that state agencies are comfortable working with and which are, consequently, integral to the cultural governance of political issues such as migration (Campbell, 2003). Sensor-realistic aesthetics have been a component of many art projects that have helped shed light on the role of visual data production in relation to security, but has not previously been theorised as a specific aesthetics.

We argue that sensor realism can revitalise the purpose of documentary and socially concerned photography to ‘speak’ on behalf of the subjects depicted so as to contribute to the improvement of their living conditions, speaking about how these subjects are produced and governed through visual data rather than about their plight as such. Yet, *Heat Maps* depicts and performs a violation of the privacy of the subjects depicted, both technologically and politically: *technologically* because the long-distance thermal camera cannot *not* violate the privacy of the subjects depicted as it enacts their body heat to visualise migration; *politically* because this violation reveals the visual conditions of migrants and thus the hollowness of western insistence on migrants’ privacy as a ground for refusing visual representations showing the everyday life of migrants (Bleiker et al., 2013). In this paper, we thus elaborate on the two expansions introduced above – one regarding representation, the other regarding visibility and visualisation practices. Scrutinising *Heat Maps* and the way it employs a sensor-realistic aesthetics shows how such aesthetics can reveal visual data production practices as prefigurative enactment of spaces of governance and intervention (Figure 1).

Visual realism for sensor societies – *Heat Maps* and the visualisation of technological visualisation

Introducing Heat Maps

The images in *Heat Maps* are produced with extreme telephoto military grade thermal camera equipment ‘patented by the US military’ (Seymour, 2017). As Mosse explains, this camera is produced by a ‘multinational defence and security corporation that manufacturers [*sic*] cruise missiles, drones, and other technologies’. The equipment is



Figure 1. Richard Mosse, *Idomeni Camp, Greece*, 2016. Digital c-print on metallic paper, 40 × 120 inches (print), 42¼ × 122 × 2 inches (framed). (Photograph: Frank Möller, March 2, 2017. Photograph taken at and reproduced courtesy of Jack Shainman Gallery, New York City).

‘[p]rimarily designed for surveillance, ... mounted on a motion controlled sentry observation point’ and adapted for Mosse’s purposes it includes ‘camera, laptop, cables, peripherals, media recorder, batteries, Steadicam arm, pole, screen, and vest’, and has an overall weight of 80 kilograms. The camera is handled by video game controller and can be ‘connected to weapons systems to track and target the enemy’. It is ‘sanctioned as a weapon under international law’ and International Traffic in Arms Regulations apply to it (Mosse, 2017, pp. 1–3), meaning that arms export/import clearances are needed to transfer the camera system between jurisdictions.

Mosse holds that the camera equipment detects a human body’s heat from some thirty kilometres distance, identifying the heat signature of an individual person from more than six kilometres (Mosse, 2017, p. 1). The camera depicts its object in grey shades, depending on the environment’s various grades of heat radiation. Heat signatures are rendered in either white or black at the discretion of the operator (Lange, 2017) to allow them to stand out against a dark night or bright daylight image. The technique visualises the recorded scene in a way that on the one hand can make every single individual recognisable as an individual, but on the other hand blurs the subject’s ‘normal’ optic features. As Mosse explains with regard to a London test shoot, the privacy of the subjects filmed ‘was being surveilled, yet they remained faceless, unidentifiable’ (Mosse, 2017, p. 2).

To Mosse, the camera’s surveillance capabilities seem ‘most suited for long range land, coastal or maritime environments’ (Mosse, 2017, p. 1) like the EU’s Mediterranean border. And indeed the migration and surveillance literature describes the likely operation of similar visual data production systems:

The commanding officer on board of the HCG patrol vessel – a Lambro 57 Pb Class III – had explained that the image is produced by a thermal camera and is calibrated so as to make cooler parts white while making warmer parts black [...] the operator of the thermal camera was scanning the shore and saw something. The operator zooms in at an extent of blackness hovering just below the massive black of the coast and against the white of the waves. A boat. (Dijstelbloem et al., 2017, p. 230)

Likewise, Topak (2014, p. 826) lists among the technologies of visualisation deployed at the Greece–Turkey border ‘patrol vehicles, long-distance day goggles, night vision goggles, thermal cameras, mobile infrared cameras, thermovision vans (equipped with thermal cameras, day and night cameras, laser rangefinders, pulse radars surface, silent generators, and communications and data transfer systems), and helicopters (equipped with infrared and visual cameras, spotter cameras, and geographical coordinate systems)’. It is clear that thermal data production and visualisation systems are at work in the surveillance of the EU’s southern borders. Even if descriptions of thermal sensing apparatuses can be found in the migration and surveillance literatures, actual analysis of the visual data production/representation of optic systems is largely absent from prominent works on naval migration governance (Bigo, 2014; Dijstelbloem et al., 2017; Garelli & Tazzioli, 2018) which instead has often focused on the mapping outputs that come after the (post-)photographic production of migration events (e.g., Garelli et al., 2018; Tazzioli, 2016; Weizman, 2017).

The agency of visualisation

In migration as elsewhere, technologies of visual data production are integral to contemporary society and developments in security-related governance. Contemporary

battlefields are heavily surveilled not only by the visual data production apparatuses deployed by conflict actors and intelligence agencies, but also through the everyday media production of people who happen to be in a battlefield, and whose online images are appropriated by both public interest actors and intelligence agencies (Saugmann, 2019). Visual data production is somewhat unexceptional in this regard, as sensing and data tracking technologies are proliferating to such a degree that Andrejevic and Burdon (2015) suggest referring to contemporary reality as a ‘sensor society’. In such a society, ‘emerging practices of data collection and use ... complicate and reconfigure received categories of privacy, surveillance, and sense-making’. (2015, p. 20) *Heat Maps* and sensor-realism invite investigation of such relational complications and reconfigurations of visual data-production technologies.

However, despite proliferating and playing a key role in transformations related to sensing, photographic devices recording, and algorithmic assemblages processing and representing, visual data are rarely themselves focus of close scrutiny. Elkins (2011, p. 150) laments that ‘equipment is rigorously excluded from academic writing about photography’. This is so although it is widely acknowledged that ‘the technology of photography is not just operated by people but ... also operates on them’, participating in and transforming the scenes depicted (Azoulay, 2015, p. 18). Sometimes the agency of photographic equipment is acknowledged but left rather unspecified, as in Berger’s classic *Ways of Seeing*. Berger – through engaging Vertov’s early avant-garde cinema and Benjamin’s thoughts on image reproduction – places the photographic camera as his starting point but is mostly concerned with the cultural ways of seeing enacted in the meeting between spectator and image (1972, p. 17). Science and technology studies, however, afford more agency to visual data production apparatuses. Amann and Knorr Cetina (1988) point out how in biological research laboratories, visual evidence is not just ‘there’ once an image is produced, but is actively constructed in subsequent laboratory work involving both social and technical reconfigurations. Thus, neither the production apparatus nor the interpreter are neutral mediators. To Haraway (1991, p. 190), this simultaneous technological and cultural agency is exactly the point: ‘the ‘eyes’ made available in modern technological sciences shatter any idea of passive vision; these prosthetic devices show us that all eyes, including our own organic ones, are active perceptual systems, building in translations and specific ways of seeing’. Understanding sensing equipment as an active perceptual system not only enables understanding what the image shows and why it looks as it does, but opens a window to the translations and ways of seeing performed by that equipment, and thus to its political agency.

Sensor realism as an aesthetic

Appropriating what Kurgan (2013, p. 86) terms ‘incriminated’ visual data production technologies is not new in and by itself – indeed, photography itself has played a crucial role in warfare. As new technologies like satellite imaging, GIS mapping and CCTV have proliferated, artists have sought to explore them. *Heat Maps*, we hold, allows us to explore such endeavours and formulate the idea of sensor realism as an aesthetics that strives to make visible visual data production. By appropriating sensing equipment and using it to depict the regimes in which the equipment is normally deployed, sensor realism is a realism that attends to visual governance and to the output of apparatuses of visualisation.

To approach this, we will consider, first, the ontology of photography and other visual sensing and, secondly, the aesthetics of sensing and visualisation, including what an aesthetic commitment to realism means in this context.

Azoulay, in her critical political ontology of photography, sees photography as constituted in two interrelated events. First, the event of photography, denoting the situation in which photographer, camera and photographed are all participants, and, secondly, the photographic event, referencing what the photographer seeks to capture (2015, p. 22). While this is far from all there is to debate about the ontology of photography, especially in the digital age, it avoids techno-determinism while providing space for thinking about the agency of equipment, and can help us unpack what we mean by sensor realism. This parsing allows us to see how sensor realism as an aesthetics conceives of reality as co-constituted in visual technologies, in what Azoulay terms the event of photography. Sensor realism is a realism that is attuned to showing the technological constitution of reality – what we could with Bolter et al. (2000) term its hypermediacy: how reality is always already mediated. As an aesthetic strategy, thus, sensor realism uses hypermediacy to achieve a visual realism that is tied to the event of photography (or sensing), including the visualisation of sensor data, rather than to the photographic event that is being photographed or sensed.

This realism is easiest to understand in contradistinction to photorealism, the dominant aesthetic in photojournalism: photorealism seeks to make invisible the intervention of the photographic equipment and represent reality as close as possible to how it would look if your eyes – but not the rest of your sensorium, and limited by a viewfinder unable to change focus – were in the place of the camera.⁶ Manovich (1995, p. 14) points out how photorealist images have structured our experience of reality so that ‘we, over the course of the last hundred and fifty years, have come to accept the image of photography and film as reality’. Rather than remembering how the photograph is constructing its own reality, we see it as a two-dimensional copy of reality. To Barthes (1977, p. 44) ‘the absence of a code [a semiotic code like spelling or grammar] clearly reinforces the myth of photographic ‘naturalness’: the scene is there, captured mechanically’ by light and photographic film. This naturalness is, however, a culturally and scientifically constructed way of seeing, rooted in traditions such as perspectival painting, Albertian perspectivism, and a commitment to a view that reality is separate from its observer (Law, 2004, p. 26). Rather than forgetting photographic equipment and equate photorealistic representation with reality, sensor-realism seeks to stay with the apparatus and reminds us of how it is constitutive of stored realities. Like in Lehmuskallio’s elucidating work on how cameras as sensors serve ‘purposes that we may not immediately recognise as “photographic”’ (2016, p. 244), this means ‘understanding media as translators, transformers and modifiers of action, a perspective that does not take images, bodies or media as a given’ (2016, p. 243). Thus, sensor realism helps us see the contingency of what appears as ‘reality’, and how it is rendered in data visualisation practices.

Heat Maps applies a sensor-realistic aesthetic strategy by depicting visualisation as it unfolds in migration governance. It is a visualisation of a visualisation: by portraying events of migration other than those usually targeted by long-distance thermal cameras, it allows spectators to both see migration events differently and see the technological mediation of migration. Indeed, it is precisely the latter aspect that interests us here as it attends to a different subset of reality, the reality of a specific sensing technology, as

the basis for documenting migration and the crisis in migration policy. Therefore, *Heat Maps* is far from banning realism but stays within an approach in which the images communicate through an idea of making reality visible. However, it displaces the emphasis on non-alteration from the photorealistic ‘natural’ appearance of a scene to one that articulates non-alteration in relation to the technologies of visualisation,⁷ the sensors that are deployed to make people governable.

Other sensor-realistic arts projects can help elucidate the relationship between sensing, data, and reality, including how photorealism plays a role in the visualisation of sensor data. Laura Kurgan, artistically appropriating satellite thermal sensing during the Kosovo war, laments only having access to the processed sensor visualisations, not sensor *data*. For ‘[e]ach pixel ... has a signature, the heat value of that place at the time the satellite passed silently above. That value is expressed in a number, which in turn has an assigned standard false colour. The satellite gathers data, we see an image’ (2013, p. 118). While Kurgan is thus not able to proceed from sensor data, only image, she creates bewilderingly beautiful satellite images of Kosovo’s landscape of unfolding war crimes. Her pink standard false colour images share many elements with *Heat Maps*’ bewildering grayscale visualisation of migration. The sensor realism of both call attention to how visual data is always already an interpretation and post-photographic representation of non-visual sensor data. Both show ‘less the facts on the ground than the ability of the technology to record, in minute detail, these facts’ (Kurgan, 2013, p. 117) and translate them into images that look like photography. This ontological parsing of photography into scene and mediation – Azoulay’s photographic event and event of photography – enables sensor realism to depict the visual apparatuses that inscribe reality and make it available as images rather than as data sheets of sensor recordings. By producing images that are like those produced by the apparatuses normally interpreting this data and representing it visually, it is exactly this data translation, and the ways of seeing deployed in it, that sensor-realist aesthetics can expose. *Heat Maps*, thus, stays close to a quasi-photorealist way of seeing, producing images that can be interpreted through what Peirce (1991) would call iconic representation (showing by resemblance or ‘naturalness’). It lets the spectator visually identify the scene as one of migration, but questions whether the public normally sees the same reality that the authorities see. The commitment to reality in sensor-realistic aesthetics is thus one in which depicting the reality of visual data production balances with a depiction of where that visual data production is active, letting the viewer appreciate the connection between hypermediated reality (reality-as-mediated) and reality-as-commonly-understood.

Sensor realism and traditions of crisis visualisation

Photojournalism and aftermath photography are two leading photographic practices visualising war, crisis and conflict. *Heat Maps*’ photographic engagement with migration shares features with and draws on both of these. Ultimately, however, it is neither. *Photojournalism*, emphasising (photo-)documentation, aims at truthful, unaltered representation of a given event, prioritising resemblance between image and reality-as-seen. The photojournalistic discipline carefully regulates the limits of representation. The *World Press Photo* contest rules out the ‘staging or re-enacting [of] events’ and the ‘adding or removing [of] content from the image’⁸ as well as technical alterations of images beyond mere cosmetic adjustments. Essential for photojournalism is proximity to the event – in

terms of both space and time – and the realistic depiction of that proximity. Such proximity defines the photographer as a witness, being on location when something happens to which she testifies photographically without interfering in the event or altering the resulting images (Lindroos & Möller, 2017). Capa's famous dictum 'If your photographs aren't good enough, you're not close enough'⁹ epitomises the photojournalistic scopic regime of proximity and photorealistic transparency. Such 'formative fictions [of photojournalism] structure future frames' (Gursel, 2016, p. 123) but also limit photojournalistic operating procedures. Indeed, critics observe both a marked predictability of photojournalistic representations of violent conflict and a certain déjà-vu feeling among viewers: in photojournalism, 'a conformity reigns that constricts possibility' (Ritchin, 2013, p. 51). With regard to political conflict and security issues, such conformity makes photojournalistic depiction of security and political violence predictable and, thus, governable for security actors who use 'visual governance tactics' that anticipate, frame and attempt to direct the flow of images from violent confrontations (Andersen, 2016; see also Campbell, 2003).

Aftermath photography emerged as a critique of photojournalism's operating procedures (Cotton, 2009, pp. 167–189). Like photojournalism, it relies on a realism that is often based in photorealism, but it does so more indirectly. Depiction happens through what Roberts calls the 'event-as-aftermath', a space for either mournful recollection and 'melancholic closure' or 'reconstruction and extension of the [original] event' (2014, p. 112). *Aftermath photography* cultivates new forms of representation and often employs ambivalence as a vision-engaging vehicle (see Lisle, 2011), estranging '[h]abits of seeing ... in the hope of opening up a space to think differently (about warfare, about landscape, about photography, about vision)' (Campany, 2013, p. 51). However, some degree of conformity constricting possibility can also be found in *aftermath photography* which appears increasingly predictable (Möller, 2019, p. 111) as it performs within another rather standardised aesthetics subscribing to 'elegiac and mournful modes', inviting spectators' "'glacial" contemplation' (Roberts, 2014, p. 110). *Aftermath techniques* provoke anxiety about whether the predominantly clean and sanitised beauty of an *aftermath image* will 'evacuate its political significance' (Lisle & Johnson, 2019, p. 11) or whether its beauty can be 'a vehicle for fostering a dialogue that escapes the narrow confines of the verbal day-to-day political distributions of the sensible' (Andersen, 2015, p. 160).¹⁰ *Aftermath photography* still faithfully witnesses something that exists or has existed, most often depicting *photography* itself as external to that event, and invisible.

Instead of witnessing events photorealistically as they occur (*photojournalism*) or reflecting on the continuation of the past in the present (*aftermath photography*), sensor realism both estranges and documents events as they are constituted in sensing technologies. *Photojournalism* represents the event while it takes place but strives to not estrange it; *aftermath photography* often estranges events but does so after the event, not while it takes place. The importance of *Heat Maps* is not mainly that it strategically estranges habits of seeing, although it does (see above). Rather, its documentary intent is vital; sensor realism visualises and questions the role and agency of visual data production (including representation) in security and migration governance. The images violate the photojournalistic insistence on naturalistic depiction and translate it into a hypermediated realism based on the visual data production apparatuses that show how data production is *productive* – we see how data production apparatuses co-produce reality, including the reality of migration governance. Ideas of authenticity and reality – which govern

photojournalistic work – remain important to Mosse: ‘we captured some extremely authentic gestures’ by ‘reading heat signatures of people who are completely unaware they’re being caught on camera’ (in Seymour, 2017). It is to the politics of this sensor-realistic enactment of authenticity that we now turn, portraying first the ambiguous complicity between *Heat Maps* and the sensing technologies it appropriates, and then the space for critically examining visual governance offered by the sensor realism of *Heat Maps*.

Sensor realism at work: collusion and critique in *Heat Maps*

In the remainder of this article, we want to illuminate the political work done in *Heat Maps*’ application of sensor realism. What, if anything, do we gain by seeing with the prosthetic devices of migration governance? We explore this by first probing *Heat Maps* controversial relation to the privacy of the subjects depicted, and subsequently its rendering of migrants and migration.

As noted above, the photographs in *Heat Maps* rely on a spatial separation between the camera and the subjects depicted – a gap of up to several kilometres which is simultaneously enabled and bridged technologically, and which means that the subjects depicted are unaware of their picture being taken. While this ‘enabled an unusually candid kind of portrait, free from embarrassment, posturing, or self-consciousness’ (Mosse, 2017, p. 2) it also raises privacy concerns (which we will address below).

Many critics believe that the replication of military patterns of surveillance qualifies *in itself* as an act of resistance to the intended military and border control purpose of this technology, rather than an act of confirmation, repetition and naturalisation. In deploying a sophisticated thermal camera to photograph migrants’ daily lives in centres and camps, critics hold, it ‘is used *against its intended purpose* of battlefield awareness and border enforcement to map landscapes of human displacement’.¹¹ Mosse himself emphasises that *Heat Maps* ‘weren’t attempting to rescue this apparatus from its sinister purpose’. Instead, the idea was to ‘enter into its logic – the logic of proprietary government authorities – to foreground this technology of discipline and regulation, and to create a work of art that reveals it’ (Mosse, 2017, p. 3). However, the use of this technology also invites and indeed necessitates critical thinking that recognises its problematic aspects. Is the use of long-distance technology not ethically problematic unless the subjects depicted agree with their thermographic pictures being taken and published? As noted above, Mosse admits ‘shooting people who were not aware of being filmed’ (in Seymour, 2017). Yet, without such awareness, the power discrepancy between the one who sees and the ones who are seen becomes obvious, and so does its surveillance dimension. *Heat Maps* may appear as just another form of surveillance, this time directed at pleasing the gaze of the art circuit rather than that of migration authorities, similarly to how arts appropriating satellite images for illuminating drone warfare appears ultimately futile to Greene (2015, p. 241).

The thermographic depiction of migrants makes the photographer and us (viewers, including readers) intrude on a space that is neither his nor ours, even if the photographer intends to intervene visually on behalf of the people depicted and even if we, in appropriating and further reproducing *Heat Maps*, intend to foster critical dialogue.¹² Viewers, by looking, intrude on a space – the migrants’ space – that is not theirs. *Heat Maps*’ audience are complicit, thus, not only in the event of Mosse’s photography but also in the event of

photography that takes place through the prosthetic eyes of state agencies. These eyes, in turn, do not only increasingly undermine privacy as a core value of liberal political thinking; they also challenge or even thwart expectations migrants can be expected to carry with them when starting their perilous journey towards Europe – or that European citizens have of their authorities' meeting with migrants. Such expectations are performed in the EU's insistence that '[r]espect for the Charter of Fundamental Rights of the EU is a key component of EU policies on migration' (European Commission, 2011) and the Charter proclaiming that '[e]veryone has the right to respect for his or her private and family life, home and communications' (EU, 2012, Article 7). The data-producing digital technologies of the sensor society have fostered widespread awareness of privacy risks among internet users, an expectation of a trade-off between privacy and utility (the privacy paradox), and resignation towards privacy violations (Marwick & Hargittai, 2019). Yet even if 'the notion of privacy, despite more than 30 years of scholarly work, is still a very complex, multidimensional, and confusing notion' (Coll, 2014, p. 1251), the official rendering of the right to privacy is remarkably unambiguous: 'who deserves the right to privacy = everybody, everywhere' proclaims the UN Special Rapporteur on the right to privacy (Human Rights Council, 2017, p. 16). Thus, we are encouraged to expect privacy rights to apply to the meeting between border authorities and refugees or migrants. However, as Bennett and Raab (2017) note in their work on privacy protection, issues pertaining to privacy cannot be separated from issues pertaining to the *governance* of privacy, the instruments of which vary across space and over time. They include visual ones.

An individual's space – the space that others have to respect as belonging to this individual and to this individual alone – is physically separated from other individuals' spaces, usually by a wall or, in the case of refugee camps, by canvas or similar material of which makeshift tents are made. Both the United Nations Universal Declaration of Human Rights and the European Convention of Human Rights connect the protection of privacy with the protection of his or her home but only few facilities in refugee camps or modes of transport allow physical privacy and a sense of home. The privacy of the tent, therefore, attains paramount importance, not only to escape the gaze of migration agencies but also to escape from one another in crowded camps. While migrants are confronted with visual surveillance during their journey, they can be expected to look for and even to rely on privacy in the refuge of their tents. Rather than privacy being a luxury that Westerners cherish but which for migrants pales in the context of their need to escape a Hobbesian nightmare, an ethnographic study with young Kurdish migrants in Turkey finds that 'more than the explicit forms of state violence such as killing and torturing, it is the invasion of the state into private spaces that marks psyches deeply' (Darici, 2011, p. 462).

While criticised by some as 'detrimental, antisocial, and even pathological', privacy thus 'is a fundamental right, essential for freedom, democracy, psychological well-being, individuality, and creativity' (Solove, 2008, p. 5).¹³ Sofsky (2007, p. 12) succinctly stipulates that '[t]he private is not for other eyes, ears, or hands'. Such expectation would indeed be in accordance with the understanding in liberal political thought of both the wall as the core of privacy, securing an individual's personal space, and privacy as the core of liberty (Sofsky, 2007, p. 23). In migration infrastructures, the tent appears as the only place where individuals can escape the surveilling eyes of the authorities and everybody else – except that, as Figure 2 shows, under the gaze of long-distance thermal camera technology,

they cannot. In Mosse's words, 'we captured some extremely authentic gestures – people asleep, people embracing each other, people at prayer' – 'a stolen intimacy' indeed (quoted in Seymour, 2017). One way of looking at *Heat Maps*, then, is by assuming that from migrants' point of view it is just another form of surveillance: 'The subjects depicted ... do not need photographers to show them what it feels like to be a migrant' and be under constant surveillance; 'they know that from personal experience' (Möller, 2020, p. 44). And they might reasonably suspect that authorities will appropriate photographs and other data in ways from which they, the migrants, will not benefit. From this point of view, *Heat Maps* and similar sensor-realistic projects would be colluding with the policing of migration, rather than criticising it.

Privacy and governance, exposed

For the intended audience, however, *Heat Maps* may be more revealing. Indeed, we are Mosse's audience – primarily western middle class citizens who are spectators in privileged locations, visiting museums, reflecting upon our agency vis-à-vis the migration crisis, buying photography books and so on, and exerting power in doing all of the above. Thus, what does this photography have to tell us? In exposing the ways in which we – as spectators and as a body politic represented through institutions of national and supranational governance – already see migration through invasive post-photographic sensors, *Heat Maps* appeals to our discomfort as spectators. The discomfort concerns seeing people through the post-human gaze of the visual data production apparatus enacting our politics, and being visually confronted with our violation of the privacy of migrants in a way we would hardly want our own privacy being violated.¹⁴ Thus, two privacy aspects of



Figure 2. Richard Mosse, *Idomeni Camp, Greece*, 2016. Digital c-print on metallic paper, 40 × 120 inches (print), 42¼ × 122 × 2 inches (framed). Detail. (Photograph: Frank Möller, March 2, 2017. Photograph taken at and reproduced courtesy of Jack Shainman Gallery, New York City).

migration policy that are often overlooked stand out. First, we already see migrants through the myriad of visual and electronic surveillance technologies deployed on them and, in doing so, already render their privacy an illusion. Secondly, privacy concerns also function as a shield to keep disturbing but effective images of migrants in pain and distress at bay.

Technological efforts to render migrants visible and thereby governable permeate European migration policies, as shown above. Not only migrants who aim to cross the Schengen border are subject to surveillance, but also migrants who are already on European soil are increasingly under surveillance to restrict their mobility (Loukinas, 2017, p. 442). This extension of the border zone and the space of security governance is only possible due to ‘sophisticated technological devices that enhance the monitoring capacities of border security apparatuses’ (Loukinas, 2017, p. 441). Visibility operates in ambiguous and somewhat surprising ways in such technological governance. It is not only ‘a technique for controlling and detecting migrant movements’ but as a flip side also allows ‘immigrants and their “facilitator” [to] frequently turn the means of surveillance back against efforts to “control the border”’ by making themselves visible (Dijstelbloem et al., 2017, p. 232) and thus oblige authorities to act on their behalf.

While such visual governance and resistance to it follow the anticipation logics we described earlier in the discussion of photojournalism, Tazzioli (2018) shows how visualisations of migrants are not necessarily aimed at migrants as persons that can be identified and towards whom both rights and concepts such as privacy and ‘individualising mechanisms of control [can be directed. Rather] they look at migrants as parts of groups – for example, x migrants on a vessel – and as detected migrant passages’ (p. 276). Here, visual sensors such as long-distance thermal cameras work through a ‘track-and-archive gaze to refer to the twofold goal of these monitoring devices, which consists in detecting migrants in (nearly) real time and, building on the data collected, crafting spaces of intervention that are future oriented’ (p. 273).

The sensor-realistic aesthetic strategy in *Heat Maps* enables it to depict such double visual temporalities through the composite character of the images, as when two half persons – cut off at the waist, seemingly consisting only of legs – pass a tent in [Figure 3](#). What the artist describes as ‘stripping the individual from the body’, displaying ‘mere biological traces’ and ‘portraying people in zombie form as monstrous’ (Mosse, 2017, p. 2), then, is the visual operation of rendering migrant bodies available for distant mapping and forecasting as data points in flows or events, rather than as people. These ‘ghosts’ can be read as tracing the contours of personhood as it is produced in contemporary visual migration governance. Visual representation of sensor data is, following Kurgan, ‘para-empirical’, a choice that is political rather than *given*, i.e., *data* (2013, p. 35). The visual politics here are radically different from situations in which the bodies of citizens are scanned at border crossings: whereas privacy concerns wrap citizens’ bodies in a politics of disappearance (Bellanova & Fuster, 2013), neither the integrity nor the privacy of the person is prioritised in the visualisation of migrants. Seen in this light, *Heat Maps* illuminates the politics of the technological trouble with privacy – how in a society increasingly operating through remote sensing and anticipatory governance ‘[c]onventional understandings of privacy as control over one’s self-disclosure and self-presentation are complicated by this reconfiguration of targeting toward patterns rather than people’ (Andrejevic & Burdon, 2015, p. 31).



Figure 3. Richard Mosse, *Idomeni Camp, Greece, 2016*. Digital c-print on metallic paper, 40 × 120 inches (print), 42¼ × 122 × 2 inches (framed). Detail. (Photograph: Frank Möller, March 2, 2017. Photograph taken at and reproduced courtesy of Jack Shainman Gallery, New York City).

The visual politics of such post-human sensor visualisation complements the photo-journalistic ‘visual dehumanisation’ found by Bleiker et al. (2013). Ostensibly invoked to protect the privacy of refugees and refugee seekers, Australian media guidelines and mandatory restrictions upon journalists visiting refugee centres are based on ‘explicit governmental directives not to “personalise” or “humanise” the issue of asylum seekers’ (Bleiker et al., 2013, p. 412). Thus,

[a] key reason for the ensuing tight control of photojournalists was [in the words of an Australian senate investigation] ‘to ensure that no imagery that could conceivably garner sympathy or cause misgiving about the aggressive new border protection regime would find its way into the public domain’. (Bleiker et al., 2013, p. 412)

In Turkey (Darici, 2011, p. 461) and Europe, the dominant visualisation of boats crowded with migrants made refugees highly visible as a threat and an uncontrollable phenomenon but at the same time invisible as individual human beings (Scorzin, 2014, p. 102), rendering them as visual and legal subjects only in relation to questions of entry (Mazzara, 2015). Visual privacy, thus, encourages visual dehumanisation and public perceptions of migrants in terms of a flood rather than in terms of individuals in dire circumstances with whom one can feel empathy. Privacy becomes a governance tool or dispositive through which authorities regulate visual data production, rather than a right – a finding that echoes the governance role privacy has been found to play in relation to informational capitalism (Coll, 2014, p. 1253). The visual discourse which portrays migrants as an anonymous security issue rather than individuals with rights, feelings, needs and dignity is nurtured by a privacy regime that discourages images which make individuals recognisable *as* individuals.

In this context, the privacy-denying sensor realism of *Heat Maps* invites the audience to critically engage with the sensor gaze and see the politics of visualisation of migration. Arguably, the simultaneous *invasion* and *invocation* of privacy is what *Heat Maps* shows us most clearly by mimicking what our migration authorities actually see – the warm bodies of adults and children undertaking the perilous journey to find safety, the cold bodies of those who perish in the attempt, but also the camera’s penetration of privacy, normality, and everydayness once relative safety is achieved in the refugee camps: people going about their business, doing laundry, playing football, socialising, eating, arguing, withdrawing into tents and so on. *Heat Maps* shows western spectators two things we already (could) know: that through the visual data production apparatuses deployed ‘directly or indirectly in “our” name’ (Berger, 2003, p. 290) we are intruding into the privacy of fellow human beings. Western spectators also could know that through the invocation of privacy in relation to media representations of migrants, we keep migrants hidden and out of sight as individuals whose dire existence demands solidarity (cf. Johnson, 2011). The sensor realism of *Heat Maps* visualises what we, through state agencies, see but do not invite ourselves, as citizens, to see.

In this discussion, we thus suggest that if *Heat Maps*’ violations of the privacy of individual migrants can be justified, it is because they reveal that for migrants neither privacy, nor the anonymity which ‘is indispensable for protecting privacy’ exist (Sofsky, 2007, p. 32), given current visual data production practice. *Heat Maps* portrays migration as an event of post-photography, a situation in which sensor capture, visualisation and identification is always already a part. Anonymity and privacy appear as myths strategically invoked to support migration policies rather than rights to be enjoyed. It depicts how border zones ‘are increasingly transformed into spaces for the testing of new “smart” technologies of control’ (Loukinas, 2017, p. 441) in which people are rendered as flows ready for intervention, rather than as bearers of rights. *Heat Maps* thus portrays the western myth of privacy as an illusion.

Conclusions: how the others are seen

In the late nineteenth century, Jacob Riis’ photorealistic portrayal of *how the other half lives* (Riis, 1890) changed both politics and photography as it pioneered the photojournalistic documentation of the reality of the poor. In this paper, we conceptualise a post-photographic aesthetics of sensor realism, and investigate its potential for critically scrutinising contemporary visual data production practices. Sensor realism seeks an aesthetic encounter with reality, but rather than photorealistically documenting *how the other lives*, it documents *how the other is seen*. Sensor realism portrays reality as co-constituted by and governed in visual data production practices, rather than depicted by them. We interrogate Richard Mosse’s *Heat Maps* to help develop the concept of sensor realism. Its depiction is not photorealistic even if the images resemble how we would expect e.g., a migrant detention centre to look like. Instead, we argue, it is sensor-realistic, showing migration as visualised by the invasive sensing technologies operated by migration and border authorities. Sensor realism, as we conceptualise it, is a post-photographic aesthetic realism based on the visual replication of technologies used in visualising and governing an issue.

Through its sensor-realistic aesthetic strategy, *Heat Maps* is able to illuminate how migrants are assembled in visual governance as post-human; the camera ‘portray[s] people

in zombie form as monstrous' (Mosse, 2017, p. 2) to be tracked and managed as flows, rather than visualised as individuals with rights, needs, etc. Mosse offers us a visual strategy with which to question strategies of visibility and invisibility, inclusion and exclusion strategically applied by the authorities. However, as we have also suggested in this paper, the people depicted may disagree with such benevolent readings and understand Mosse's work primarily as yet another form of surveillance. Rather than magically revealing the world as it is, Mosse's sensor realism thus exists in a problematic balancing act between respecting the right to privacy on the part of the people depicted and revealing the hypocrisy with which privacy, one of the core values in western political thinking, is simultaneously deployed and rendered meaningless.

Notes

1. We are grateful to the participants at the following workshops and conferences where drafts of this argument were discussed: the Visual Politics Seminar (U Queensland), Spaces of Refuge (Tampere), Peace Perspectives (Tampere), Photomedia (Helsinki), PCWP – Popular Culture and World Politics (Newcastle) and Why Remember? Memory and Forgetting in Times of War and Its Aftermath (Sarajevo). Special thanks to the special issue editor and reviewers for ICS for their wonderfully constructive, thoughtful, and knowledgeable comments.
2. By post-photographic we mean a practice building on but exceeding photographic image production. For a good discussion of how digital images exceed the photographic, see Lehmuškallio (2016, p. 248ff).
3. 'Migrants' and 'refugees' are aggregate terms used here with some degree of uneasiness for human beings socially-discursively-visually constructed as such, yet always carrying multiple subject positions, sometimes supporting and sometimes competing with the subject position of a migrant (see Häkli et al., 2017).
4. *Heat Maps* is part of the larger project *Incoming* (consisting of photographs, videos and sound installations). Our research material consists of photographs of Mosse's photographs, taken at Jack Shainman Gallery (New York City) in spring 2017 at the exhibition *Richard Mosse: Heat Maps* and reproduced here with kind permission from the gallery.
5. <https://www.guggenheim.org/artwork/movement/photorealism> (accessed 27 February 2020).
6. Wenders and Zournazi (2013, p. 95) hold that 'in the classic realm of cinema which was entirely based on 35mm film' the assumption prevailed that 'our human vision corresponds to about a 35 or 38mm lens'.
7. However, Mosse admits having improved the operating procedure of the camera 'to evolve its functionality' (Mosse, 2017, p. 3).
8. See <https://www.worldpressphoto.org/activities/photo-contest/verification-process/what-counts-as-manipulation> (accessed 18 May 2020).
9. As quoted on the Magnum Photo agency webpage: https://pro.magnumphotos.com/C.aspx?VP3=CMS3&VF=MAGO31_9_VForm&ERID=24KL535353 (accessed 18 May 2020).
10. The same anxiety exists with regard to the beauty of sensor realistic images (see above).
11. <http://www.prixpictet.com/2017/05/richard-mosse-announced-as-winner-of-prix-pictet-space>, (accessed 20 June 2017, emphasis added), see also Seymour 2017.
12. We cannot escape being complicit in violating the privacy of the people depicted, and in the unequal power relation that underlies their observation. This uncomfortable position is, however, integral to the power of sensor realist aesthetics, as it seeks to repeat what 'we' already do through security agencies. Paraphrasing Sontag (2003) we can take *Heat Maps* as an invitation to 'let the sensors haunt us'.
13. Given that privacy is a controversial, contested and elusive concept – 'a concept in disarray' (Solove, 2008, p. 1) – a detailed genealogy is beyond the scope of this article, as is the search for a binding definition which we neither deem feasible nor desirable.

14. See, for example, the controversy revolving around Arne Svensson's photographs of 'his unknowing, sometimes sleeping, neighbours' (Cain 2014).

Notes on contributors

Rune Saugmann is an Academy of Finland Research Fellow at Tampere University and docent at University of Helsinki. He is the editor (with Juha Vuori) of *Visual Security Studies* (2018) [email: rune.saugmann.andersen@tuni.fi].

Frank Möller is a KONE Foundation Grantee (2020–2022) and project leader Peace Videography. A Docent in Peace and Conflict Research at Tampere University, Möller is the author of *Visual Peace: Images, Spectatorship and the Politics of Violence* (2013) and *Peace Photography* (2019) as well as the co-editor of *Art as a Political Witness* (2017) [email: frank.moller@tuni.fi].

Rasmus Bellmer holds a B.A. in Political Science and Economics from the University of Münster, Germany. After obtaining an M.A. degree in Peace, Mediation and Conflict Research at Tampere University, Bellmer will in July 2020 join the project Peace Videography, funded by the KONE Foundation [email: rasmus.bellmer@web.de].

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ORCID

Rune Saugmann  <http://orcid.org/0000-0002-6936-8845>

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