4 AI visions: Representing Russia's War Against Ukraine for Humans and Machines

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The unprecedented use of artificial intelligence (AI) technologies makes Russia's full-scale invasion of Ukraine one of the first AI wars (Sobchuk 2024). We understand AI wars as armed conflicts, which are characterized by the intense application of different forms of AI technology to wage and represent mass violence.[1] Since February 2022, AI has been used by state and non-state actors in Ukraine and Russia for a multitude of purposes. Many of these purposes relate to the representation of the ongoing violence, with AI being employed to navigate the abundance of factual information and instrumentalized false claims about the war, but also increasingly to generate new war-related texts and images (Drevnytska 2024). Consequently, AI becomes an important constituent of war representation practices used by human actors, amplifying and countering disinformation and propaganda (Tolmach et al. 2023; Sobchuk 2024), facilitating military open-source intelligence and the detection of war crimes (Shepitko et al. 2024) and shaping how the Russian aggression will be remembered in the future (Makhortykh 2023).

So far, most of the above-mentioned discussions focus on AI-human interaction in the context of war representation. However, we argue in this chapter that with the growing adoption of AI as a direct element of warfare, the practice of AI representation of violence becomes broader and has to include interactions between AI and machine actors, such as combat or surveillance drones. With machine actors becoming increasingly autonomous entities, which rely on specific forms of AI (e.g. computer vision systems) to acquire and exchange information about the present and past states of the world surrounding them with each other (e.g. Makhortykh 2024), we need to critically explore and understand how AI represents war to these actors.

1 It is important to note that AI has been used in the earlier armed conflicts as, for instance, the first Gulf war where the US applied the AI-powered Dynamic Analysis and Replanning Tool (DART) to facilitate military logistics (Hedberg 2002). However, Russia's war in Ukraine is distinguished both by the unprecedented scale and diversity of the AI applications for warfare and the use of AI by both sides involved in the conflict.

Achieving such understanding is not a trivial task, in particular, because such representation is based on bridging human concepts (e.g. of civilian/military targets) and machine agents' sensor data with the subsequent translation of both into machine-readable data that, in turn, has a physical impact: the performance of a machine agent and possible errors, for instance regarding incorrect targeting of a combat drone, can have implications for human lives.

To entangle these complexities, in this chapter, we discuss the visual representations of Russia's war in Ukraine by AI technologies for humans and machines and their role in the context of modern warfare and data-driven representations of mass violence. In times of vast social media usage, we are used to multimodal war representations on Instagram, TikTok or X, images, videos, excerpts from films, news reports, and remixes of already posted media. However, AI-made war representations are a relatively new addition, both in practical and conceptual terms. AI models, such as GPT or Midjourney, do not witness war in a human experiential sense; instead, they rely on probability techniques to learn certain patterns of representation from the training data, which are then used to create verbal and visual content regarding mass violence. While the representations of warfare by AI that we increasingly encounter on digital platforms may look artificial, they still capture the attention of the digital public. For instance, in the context of the Israel-Hamas war, the AI-generated image "All eyes on Rafah" was shared over 40 million times online; the image "Where were your eyes on October 7" was shared over 400,000 times online (Jennings 2024), although these images were artificial.

A related question is whether the artificiality of image-generative AI outputs and aesthetic engagement with them makes them ethically inappropriate representations of suffering. In "Looking at War", Susan Sontag discussed how the "moral authority" of images is maintained through the authenticity of the event they represent or their authorship (Sontag 2002). But can the apparent artificiality of AI warfare imagery today be seen as an ethical problem of war representation, similar to and yet qualitatively different from the staging or manipulation of images? Or is it rather a sign of contemporary platform users' normalization of AI warfare imagery, their acceptance of its fakeness, and its desirability as a tool for realizing their own political aesthetics? While we do not have a definitive answer, as the ethics of AI representations of war is an issue that will need to be negotiated between different publics, the fact that hundreds of thousands of social media users are sharing images of war by AI suggests that AI representations are not yet being questioned en masse.

However, as we noted earlier, the use of AI in the context of representing Russia's war in Ukraine does not relate exclusively to humans. The growing adoption of (semi-)autonomous combat drones[2] both by the Russian and the Ukrainian troops

2 In this paper, we treat the concept of combat drones as an umbrella term for different types of unmanned combat vehicles. Within this broad category, we differentiate between drones

(Kunertova 2023; Saxon 2024) not only makes AI a direct constituent of the violence but also raises questions about how the war is represented to these machine agents. Such representations enable the drone to perform its tasks when a human operator can not control it anymore, particularly regarding identifying and hitting targets. To construct such representations for combat drones, AI-powered computer vision techniques are used to help drones acquire and interpret (visual) information about the world. However, because computer vision fundamentally differs from human vision (Ullman et al. 2016), it results in a new set of distinct machine-oriented representations of the war and a new set of issues.[3]

In the following, we discuss some of the critical aspects of AI-mediated war representation and the questions about its current state and the long-term consequences. It is our exploratory approach that also leads us to ask the larger questions: what are the images of the war that algorithmic systems promote to human users, and how do current visual trends in AI representation of wars align with normative expectations regarding war representation? How different are machine-oriented representations of wars by AI, and what implications it may have for the human ability to understand it and the ability of drones to operate in the (still) human-shaped landscape of modern warfare? We also observe that the contemporary forms of AI representations of wars and crises, on the one hand, form emerging cultures of representation of suffering and violence, where artificiality becomes socially acceptable and desired.[4] Also, AI-to-machine representations (e.g. for drones that

with higher and lower degrees of autonomy – e.g. the ones fully controlled by the human operator and the ones capable of more autonomous action. To our knowledge, none of the drones which are commonly used in the context of Russia's war against Ukraine is capable of fully autonomous behaviour (e.g. in a sense of deployment and target selection), so we refer to more autonomous drones as (semi-)autonomous due to them still relying on the presence of the human operator in the loop.

3 As Taras Nazaruk, the head of Digital History Projects at the Center for Urban History in Lviv at the time of writing, pointed out in a private communication in response to this essay, we can see the "paradoxical dialectics of epistemic uncertainty of AI-to-human war representations as opposed to reliance on the expected certainty AI-to-machine representation. On the one hand, we tend to doubt war representations as far as AI is concerned. On the other hand, we have a lot of expectations and credibility in using AI for drone strikes or perpetrator identification."

4 It is worth noting that the questions of authenticity and artificiality have been discussed long before the rise of AI representations of war and violence, for instance, in the case of pre-digital forms of representations of events such as the Holocaust (see, for instance, Hornstein/Jacobowitz 2003) or the wars of the 20th century (Guittet/Zevnik 2015). For many of these representations, more artificial treatment of the events portrayed, usually in a sense of these representations featuring more dignified and less shocking images, has also been socially desired.

use computer vision technologies) enable practices of precise violence, including drone warfare, which are increasingly used in contemporary wars.

The rest of the chapter is organized as follows: first, we briefly discuss some of the critical aspects of war representation and AI by engaging with existing research. Then, we examine human-oriented representations of Russia's war in Ukraine by AI, such as different forms of deepfakes, and the possible consequences of their growing use. After that, we look at machine-oriented war representations by AI, in particular the ones related to combat drones' ability to visually recognize targets and navigate in space. We conclude by critically reflecting on the evolution of the concept of war representation in the context of modern wars and scrutinizing some of the key normative aspects associated with the emerging forms of representation of mass violence by AI.

War Representation and Media Technologies

From a cultural and media studies perspective, technology is understood as "reified human labor and energy" (Jameson 2009: 1534) and is always linked to human agency. The development, maintenance, repair or use of any technology – including (semi-)autonomous forms of AI – involve human action, albeit such action can take different forms. While various media technologies – including painting, photography or film – have historically been used to represent war for aesthetic, commemorative, and political purposes, the development of AI has brought a further change to such representations. Not only does AI allow producing representations of violence faster and easier than other media technologies, but also the nature of AI representation of war is different due to its probabilistic and highly non-transparent nature and the lack of semantic understanding of the content that AI retrieves, generates, or identifies.

Cultural and media scholars have been keenly interested in mediated representations of war both in its course and in its aftermath. A few prominent examples include the work of Theodor W. Adorno (Richter/Adorno 2002), Susan Sontag (2003), Friedrich Kittler (2021), Frederic Jameson (2009), Paul Virilio (1989), Jean Baudrillard (1995), or Lilie Chouliaraki (2006) who criticized and problematized the idea of war representation, and representation as such (Pitkin 1967). Such critique is crucial because, ontological differences between the specific groups involved in the war aside, wars are inherently difficult to represent. The staging of wars through individual testimonies and (mass) media often fails to capture the complexity and chaos of the intense embodied experience of violence and suffering, raising critical questions about the act and subject of representation. Frederic Jameson (2009: 1533), for example, wrote of the "suspicion that war is ultimately unrepresentable". Similarly, Horkheimer and Adorno, in their work, along with Walter Benjamin and in the con-

text of the Frankfurt School project of critical theory, explored the historically conditioned relationship between language and violence. Part of this exploration involved highlighting how violence is inherent in representations and criticized the post-World War II cultural production that cemented violence and its instrumentalized representations as an inherent feature of modernity (Horkheimer/Adorno 2007; Rothberg 1997).

The rise of new forms of mass media over the course of the 20th century, from broadcast media to digital and then mobile media, has profound implications on how wars were represented. Sontag (2003) and Chouliaraki (2006) have shown how different forms of media not only shape the direction of viewers' attention but also lead to an unequal distribution of attention to mass violence around the globe. It resulted in the phenomenon where many of the audiences for these representations have not experienced the wars they observe through the media, contributing to the historically conditioned and flexible nature of war interpretations. The increasing globalization and fragmentation of war representations also resulted in the transformation of contemporary war witnessing practices, including platform-based war witnessing (e.g. Bareikytė/Makhortykh 2024), resulting in emerging forms of inconspicuous war witnessing, which exist beyond traditional or so-called alternative media channels. Under these circumstances, the mentioned critiques critically interrogated the idea of mediated war representations, noting both the constructed character of the representation and its limits.

The recent research on war representation often looks at the practices of representation (but also censorship and information suppression) enabled by digital platforms. Affordances of platforms like TikTok or X enable multimodal representations of wars, which range from static images to amateur video records to news reports and remixes of existing media. The engagement of platform communities with these types of content enables diverse practices of representation of both historical and ongoing conflicts. The forms of these practices are many: in the case of Russia's war in Ukraine, they include the use of platform affordances for instrumentalizing past traumas for mobilizing popular support and propagating hate speech (Gaufman 2015; Makhortykh 2018) to creating fake representation of war crimes for demonizing the opponents (Khaldarova/Pantti 2016) to documenting the events of the war via internet memes or perecklychka-like practices (Bareikytė et al. 2024). Additionally, these diverse practices are shaped by the affordances of platforms where these practices emerge, in particular algorithmic systems, such as the ones used by platforms to organize and prioritize content (or, in some cases, personalize its selection for the users; Makhortykh/Bastian 2022). Simultaneously, the increased capacities for automating representation-related tasks, including content published or distribution, through platform-based robots (or just bots), raised concerns about the possibilities for manipulating war-related representations through the propa-

gation of false content or specific interpretations of the war (for some examples of studies on bots in the context of Russia's war, see Smart et al. 2022; Zhao et al. 2024).

The emergence and use of AI technologies raise new concerns about the representation of wars. The rise of AI representations takes place in the realm of datafied (visual) cultures, where various texts and images have become (training) data and, therefore, "computational" (Anderson 2017: 5). Unlike photographs or television reports, traditionally viewed as credible sources of representation, AI representations are emerging from the whimsical generation of prompts and based on historical data imaginaries. Just like representations of social reality coming from traditional media, images and text made by AI representations, leaning on current empirical research and long-standing critique of representation from cultural studies, may reiterate societal biases (Noble 2018; Benjamin 2019). Besides, AI representations can be prone to errors: for instance, there are many examples showing that generative AI also has difficulty in representing certain parts of the human body, as the infamous example of the fingers shows. It again highlights that AI technologies are not concerned with capturing and interpreting forms of meaning (Wasielewski 2023) while at the same time creating a visual illusion that they create meaning. It stresses the importance of considering how different forms of AI represent wars both to humans and to other AI models by translating human inputs and sensor data into numeric vectors used for AI decision-making to understand and critically engage with the forms of hybrid human-AI modes of representation of suffering and violence.

Notwithstanding these limitations and critiques, the present wars are characterized by the growing involvement of generative AI representations of war and the machine actors that are directly participating in the violence. To enable such participation, these actors (e.g. combat drones) have to construct a certain representation of the war to be able to perform their violence. The acknowledgement of such machine representation is reflected in the research on drone vision, focusing on the representations produced by the drone for the human actors (e.g. drone operators, see Bender/Kanderske 2024). By contrast, the machine-oriented representations which are utilized by increasingly autonomous drones remain largely understudied.

AI-to-Human Representations of Wars

Generative AI can create new representations of war for humans in different forms: text, image and, increasingly, video and sound. As noted earlier, we focus primarily on the images produced by AI due to visuals being a particularly potent means of communicating information about mass violence; while doing so, we put more emphasis on static image generation being substantially more accessible at the present moment than AI-assisted video production. The capacity of AI to produce visual con-

tent relies on it being trained on a set of historical image data which then undergoes the diffusion process (i.e. the addition of noise to change the original image) to create new images. This process enables new forms and genres of digital representation of wars which we will discuss in more detail below.

One of the AI-enhanced forms of visual representation which received substantive attention in the case of the war in Ukraine is deepfakes. The narrow definition of deepfakes considers them to be manipulated forms of visual content where the identity of one actor is swapped with another one (Westerlund 2019). There were several prominent instances of such deepfakes, primarily coming from the side of Russia, in the course of the war. Some of the early examples regard the badly-made deepfake of Volodymyr Zelensky calling Ukrainian troops to surrender in March 2023 or the deepfake of Putin from the same period announcing peace with Ukraine (Twomey et al. 2023). A separate genre of deepfakes involved the educational videos made in Ukraine to attract attention towards Russian war crimes and demonstrate the potential and risks of technology; one such example is another early deepfake showing Putin in Mariupol talking about the Russian war crimes (Twomey et al. 2023).

The use of deepfakes continued later in the war, as shown by a new wave of deepfakes in 2023, which included fake images of Valeriy Zaluzhny calling for Ukrainian troops to turn against the Ukrainian government in Kyiv and labelling Zelensky as an enemy of the people (Belton 2024). Another instance of deepfakes which has been present throughout the war relates to the usage of AI-generated images to create convincing personal accounts by trolls and bots (see, for example, the work done by DFRLab (https://dfrlab.org/) or the Civic Resilience Initiative (https://cri.lt/) to counter such forms of manipulation.

In a broader sense, however, all images, which are non-authentic in the sense of not being made by humans but being generated by AI models, can be viewed as deepfakes. These representations are built on historical data, which does not represent the current state of violence; they also form cultures of representation of suffering and violence, where aesthetics of artificiality is acceptable. In such an environment of epistemic uncertainty, the artificial images of the war above-mentioned AI-made images of the Israel-Hamas war gained potentially substantive public attention. This is also the case in Russia's war against Ukraine, where artificial images have been increasingly used.

One example of using AI representations of war for propaganda purposes is the Rybar project led by the pro-Kremlin blogger Mikhail Zvyagintsev. In addition to providing textual reporting on the course of the war, Rybar also recruits artists using AI models to create visual content representing the war. Such a representation is strongly skewed towards glorifying the Russian army, often by using tropes related to the Second World War, which can be both the result of the human prompting and the training data, which relies on a specific set of visual tropes. Other examples relate to the use of AI for producing images which glorify the Ukrainian soldiers or

emphasize the suffering of Ukrainian civilians and animals targeted by the Russian strikes (Drevnytska 2024).

An important aspect of AI-generated images is that they can be used not only by artists or other people having the necessary skills and resources but also by ordinary citizens. The growing online presence of AI images representing the war in Ukraine is evidence of the ongoing adoption of the technology for economic and political purposes, ranging from generating likes to expressing one's perception of the war to manipulating public opinion. To achieve these aims, such images focus on common war-suffering tropes with strong potential for stirring emotions, such as artificial images of cats buried in the rubble or families sitting in the ruins of their apartments (Drevnytska 2024). While being based on historical data and probabilistic models used to generate new content, these images can provoke strong emotional reactions and potentially shape how the public perceives violence.

While the exact degree to which AI-generated images have an effect on individual and collective perceptions of the war is currently unclear, the very usage of generative AI and the societal valuation of its outputs changes how individuals – especially outside of the war zone – engage with war representations. Also, the growing quality of AI outputs makes it difficult to detect if these images are made by AI or humans, thus complicating the process of deciding if the content may be fake. In other cases, references to AI-generated visual content are instrumentalized as part of disinformation campaigns. AI-generated images can diminish the trust in the authenticity of visual representations of war, and it also complicates the critique of mediated images of suffering because the parameters to generate such AI images are changing and uncertain, and malicious actors are learning to abuse them. As a result, an emergent culture of epistemic uncertainties can be exploited by specific parties involved in the war, for instance, to make the public mistrust facts related to war crimes or even genocide and undermine popular support towards resisting perpetrators committing them.

A related concern regarding the instrumental uses of AI-human interaction in the context of war representation relates to AI-facilitated face recognition. For instance, the US-based company Clearview AI has been providing face recognition services for Ukrainian authorities to facilitate the identification of Russian perpetrators and Ukrainian collaborators (Bergengruyen 2023). In this case, the representation relates to the delivery of information to humans regarding the individuals responsible for the crimes committed during the war. The possible errors and uncertainties regarding the AI-based representation in this particular context can result in individuals being falsely accused of being involved in the committed crimes.

These different forms of AI-to-human representation raise a number of conceptual and normative questions. For instance, are AI-generated images of war expected to represent the suffering on the ground (and who determines authenticity in this context), or rather to promote contemporary aesthetics and so-called "vibes"

of "not-realness", contributing to the political cultures of today, immersed in the so-called era of post-truth and institutional distrust? Have we perhaps left the phase of evidence-based representation of war (Sontag 2003) and entered the phase of AI-generated and mediated representations, in which artificial images are not only problematized and distrusted but widely accepted as the new normal and even demanded by the digital public? If the demand for situated representation of wars is supplemented by the societal acceptance of AI-generated images that, despite their artificiality, continue to form our ways of imagining and remembering (Liv/Greenbaum 2020) conflicts, this leads to a variety of problems. They include the possible normalization of existing forms of societal bias that may be statistically articulated by AI. The situation demands both empirical analysis of AI representations and a broader critique of such AI-based depictions of wars, as the models that shape aesthetic and imaginary landscapes online seem to not be disappearing anytime soon.

AI-to-Machine Representations of Wars

Besides the human use of AI as a means of representing war to other humans, the war in Ukraine prompted an important advancement in how visual information about the war is exchanged and interpreted by AI systems themselves. This development is specifically related to war drones which are increasingly used for war purposes, from collecting intelligence to evacuating wounded soldiers to conducting strikes against enemy units (Jacoby 2024) to forming contemporary "aesthetics of battlefield" (Bender/Kanderske, 2024). To improve the usability of drones, especially under the conditions of increased capacities for blinding and disabling them with the means of electronic warfare, drones have to be able to act (semi-) autonomously, and the ability for such form of agency directly depends on the ability of drones to construct representations of war and related phenomena.

The case of attack first-person view (FPV) drones is of particular relevance in this case. This type of drone becomes a key weapon that is used both by the Russian and the Ukrainian soldiers. The original idea of the FPV drone is that it is directly controlled by the human operator through the radio signal connecting the drone to the operator (Milasauskas/Jaškūnas 2024); however, the capacities for radio signal suppression make human-operated drones less effective (Ibid.). Under these circumstances, a growing amount of effort is put into integrating computer vision capacities into FPV drones to enable their autonomous performance of the tasks, in particular automated target recognition and tracking without the direct involvement of the human operator, which may become impossible due to signal suppression. In this way, the FPV drone can keep following its target even if the human operator does not control it anymore or, hypothetically, even identify and destroy new targets which it notices.

One area of representing war by AI-to-machine relates to the identification of geographical objects for helping drones locate themselves in space. In addition to being able to identify the targets, drones have to acquire information about the space surrounding them to navigate. This specific form of representation is particularly applicable to attack drones (Maltsev 2023); however, it can also be relevant for other types of drones, such as those focused on surveillance.

Also, traditionally, to learn to identify a certain type of visual phenomenon, AI had to be trained on datasets which were labelled by humans. The usage of drones in the war in Ukraine, however, poses multiple challenges for this practice due, for instance, to the great variety of military equipment involved and also the different angles and heights under which the drone sensors perceive the battlefield. As a result, it is complicated to develop a comprehensive capacity to represent the war required for such (semi-)autonomous decision-making through human labelling. It creates additional difficulties due to the different angles from which the drone can observe the target (which does not necessarily align with the potentially small variation in images in the training data) and the lower accuracy of automated object recognition (Maltsev 2023). One potential way to improve automated targeting in this case is to specifically focus on using computer vision to identify moving objects that can be targeted (Ibid.). However, such a focus on moving objects has to be supplemented with the model's capacity to differentiate between civilian and military objects because it otherwise could create the risks of drones targeting objects in a non-differentiated manner.

A major consideration regarding the AI-to-machine representation concerns the intrinsic invisibility and non-transparency of its implementation, especially for humans who are not necessarily directly involved in the loop in this context (Mozur/Satariano 2024). Under these circumstances, it becomes even more difficult to detect possible errors in the AI performance or the potential systematic skewness in the form of bias. It also raises the question of what bias can mean in the context of AI-to-machine representation of war. For AI-to-human representation, one possible form in which bias can occur relates to the unequal treatment of specific war-related issues (e.g. the representation of specific groups, for instance, of victims and perpetrators, or civilians and the military). However, it is less clear what would be the meaningful operationalization of bias in the case of drone targeting: can it be related to variation in the capacity to identify specific types of targets (for instance, better performance for hitting specific armed vehicles as contrasted by the civilian targets)? And to what degree the normative concepts often discussed in the context of AI bias research, such as diversity of fairness, are applicable to these cases?[5]

5 We also would like to note the appropriation of the ethical AI discourse by military actors (see, for example, Clark 2023) that is relevant in this context.

Another consideration relates to the possible connections between AI-to-human and AI-to-machine war representations. Besides the representation of war to humans, image-generative models can produce synthetic data for training and retraining computer vision models used in the war context (for instance, to account for the rarity of certain objects such as rarer forms of military vehicles or specific weapon types; Murgia 2021). Potentially, it can result in additional reinforcement of the loop of AI representing the war to AI based on earlier representations of AI.

AI visions of Russia's War Against Ukraine

In the essay, we outlined several examples where AI-assisted image generation and computer vision are used to represent Russia's war against Ukraine while also considering the complicated nature of the representation of war and suffering. In the context of this ongoing war, AI technologies were deployed to create deepfakes of political leaders (Wakefield 2022), whereas the use and development of autonomous weapons, which require AI models to provide accurate representations of the spatial environments (Maltsev 2023) in Ukraine, has made the country a "test bed" of data practices of AI (Bergengruen 2024). In short, AI representations are diverse and based on different AI models and their multi-modal capacity to create various forms of output.

While the representation of any kind of events is being questioned in the so-called times of post-truth, which is expressed by the destabilized beliefs in epistemic authorities, AI technologies and their diverse use of representational media may further confuse the deteriorating trust between individuals and authorities, but also between individuals and other individuals. AI visions can be tailored in a highly individualized manner, and the emerging visual cultures of artificial war images and their publics are becoming increasingly cautious about the source of the images and beginning to question the neutrality of any medium. At the same time, these emergent cultures also contribute to the ongoing questioning – not disbelief as such – of any kind of war-related imagery, fostering contemporary epistemic uncertainties (see, for example, Pomerantsev 2014) and laying the groundwork for potential future disinformation campaigns.

The use of computer vision in (FPV) drones collides with the limited capacity to produce comprehensive representations of wars for AI via training datasets, leading to the potential for errors in representation-related decisions of AI (for instance, regarding automated mistargeting). The non-transparency of AI-to-machine representation can, more broadly, limit the possibility of informed political responsibility, accountability, and critique of automated decisions of machine agents. The opacity of war collides with the opacity of AI systems and emerging practices of synthetic

data, which may not only lead to detrimental societal effects but also increase the already existing mistrust of authorities in the context of war practices in the future.

The general questions of the normative expectations of AI-to-human war representations remain to be discussed. Are the criteria, including responsibility, accountability and fairness, applicable to the AI-to-machine representation of war, as in the case of drones? What representations can (and shall) be considered particularly risky in this context? And shall the applications of computer vision and AI-to-machine representations still be treated as representations for humans, as seen in the outputs of image-generative AI? Moreover, is suffering representable by AI technologies at all, and is there a less biased and balanced AI representation of massive events of violence? Or is such a question ethically problematic as it expresses a desire to allow AI technologies to gain increasingly more value for all parts of human life? Finally, what role does respect for human life and dignity play in both AI-to-human and AI-to-machine representations, and what agency do those who use these representations, or are targeted by these representations, or whose data has been and will be used to create these representations, have?

To answer these questions, it is crucial to keep track of the rapid developments in modern warfare, in particular regarding the increasing impact of non-human actors on how contemporary wars are waged and represented. In our chapter, we briefly demonstrated how these developments result in the emergence of not only AI-to-human but also AI-to-machine representations of war and the different goals these representations can serve. What should follow is more empirical research on how such representations emerge, in which ways human and non-human actors interact with them, and what their implications are for different aspects of modern wars, ranging from the fighting at the frontline to the long-term prospects of war remembrance. It is also important to consider how AI-to-human and AI-to-machine representations are constructed in the case of armed conflicts other than Russia's war against Ukraine. The importance of understanding how universal or context-specific such representations (and their effects) are, prompts the need for comparative research, which can look both at the other large-scale conflicts (e.g. the war in Gaza) and more low-case asymmetric instances of mass violence (e.g. drug wars in North and South Americas).

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