

The Realities of Autonomous Weapons: Hedging a Hybrid Space of Fact and Fiction

Jascha Bareis and Thomas Christian Bächle

Introduction

The development of autonomous weapon systems (AWS) – at times also bearing the ‘lethal’ label under the acronym LAWS – has been subject to intense discussions for years. Numerous political, academic or legal institutions and actors debate the consequences and risks that arise from these technologies, particularly their ethical, social and political implications, with many calling for strict regulation or even a global ban. Despite this public prominence and the perceived consequentiality of these weapons, it often remains surprisingly unclear which technologies are evoked by the term AWS and what they are capable of. AWS can refer to drones, flight carriers, unmanned aerial, ground or maritime vehicles, robots and robot soldiers or cyberweapons such as computer viruses.

This uncertainty comes despite (or maybe because of) the fact that there are numerous definitions that try to specify the term either functionally (‘once activated’, autonomous weapons ‘can select and engage targets without further intervention by an operator’: [US Department of Defense, 2023](#): 21) or conceptually (derived from the theorization of autonomous systems, artificial intelligence [AI] or machine learning [ML]). Definitions leave plenty of room for different types of technologies and – combined with the much wider discussions on AI – potentials and projections on future developments. Besides this terminological ambiguity, it also remains inherently vague in what sense and to what degree these systems can be characterized as autonomous at all. Even though the development of automated capabilities is undoubtedly advancing ([Scharre, 2018](#); [Schwarz, 2018](#); [Packer and Reeves, 2020](#)), with an ever-decreasing degree of human agency and ways to intervene, fully autonomous weapons that are completely

beyond human control and for this reason feared by many largely represent a conceptual possibility rather than an actual military reality.

These ambiguities result in wide gaps of meaning, which are in turn filled with imaginations – a common practice for new technologies and AI in particular (Suchman, 2023). Potential realities can fulfil an important role, as they are tools to transfer expert knowledge into other fields of society, including journalism, policy making, research, education and democratic decision-making processes. Hence, the ideas on the functionality of AWS and their consequences are inspired and shaped by imaginaries on military, national and technological futures. They include geopolitical scenarios, ethical questions, national policies or science fiction. In security and military policies, these interconnections between different realities are even utilized as a methodology – for example, as ‘red teaming’ – which means applying creative fictional accounts of potential futures to inform actual decision making (The Red Team, 2021). Another application is war gaming, a method of foreseeing future military scenarios originating at least as far back as the 19th century, but adapted to contemporary technological and media environments, including virtual reality and AI-based simulations using large language models (Goecks and Waytowich, 2024).

The premise of autonomous weapons, seen as entertaining a hybrid space of their own, invites the exploration of their concomitant myriad realities. The rationale of the book maintains that the realities in question can only be understood by acknowledging the constant and complex dynamic between the actual technological developments and the visions and virtual scenarios that are associated with them. It is exactly in this context of uncertainty – in which imagination, possibility and fiction are conflated – that autonomous weapons become highly consequential. They provoke emotions, discourses, agitations, (re)actions, investments, competition, policies or technological and military blueprints.

Publications on the topic of autonomous weapons often focus on their legal, political or ethical ramifications (for example, Bhuta et al, 2016; Krishnan, 2016), a first-order level of assessing these technologies, with some works also discussing their unique representations (Graae and Maurer, 2021), and the way we witness and experience them (Bousquet, 2018; Richardson, 2024). The foundation of these works is also based on the different realities outlined earlier. Introducing another way of analyzing the realities of autonomous weapons, this volume puts forward a second-order level approach: an ethical problem, for example, is not framed only as such, that is, along the lines of posing the following normative question: ‘Which moral questions arise with automated killing machines?’ The ethical problem, in the approach suggested here, is instead to understand it as a contributing factor that helps to construct, disseminate and maintain a specific understanding

of lethal AWS in popular culture, politics, journalism or research. In short, ethical discourses co-create the realities of their object. For this reason, the perspectives taken in this book foreground the different realities of AWS and, in turn, aim at informing the existing debates about their (often implicit) underlying assumptions.

This introductory chapter of the book first sketches out the technological and political developments towards an ever-increasing automation of military machinery. These developments are theorized as both constitutive as well as performative to encompass the dynamics and different understandings of AWS around the globe in theory and practise. Subsequently, the chapter offers six reflections on these realities that help hedge and consolidate the dynamic meanings of AWS, which tend to receive so much attention in public, military and regulatory arenas. The chapter concludes with an overview of the book's structure and a brief summary of the individual contributions.

Approaching the realities of autonomous weapons

The idea of automatic or self-directed weapon systems can be traced back (at least) to the cybernetic paradigm of the 1940s (Galison, 1994). However, in military history, the final phase of the Cold War in the late 1980s and the First Gulf War in 1991 can be seen as the key moment towards today's discourses on AWS, since the Cold War also saw the first philosophical examination of 'intelligent' war machines (de Landa, 1991). Against the background of various ideas on 'post-industrial' warfare (for example, Echevarria and Shaw, 1992; Toffler and Toffler, 1993), the digitalization of information and communication infrastructures of the US Armed Forces has been characterized as a 'Revolution in Military Affairs' (Cohen 1996) and considered as a phase of disruptive technological developments. Around the same time, the paradigm of network-centric warfare emerged, which defined the standards for a new form of warfare based on the idea to achieve permanent information dominance through rigorous networking of all forms of military systems, including both human and technical agents (see Ernst's chapter in this volume; Cebrowski, 2005; Bousquet, 2022).

Another milestone in the political and military ambitions to intensify the development of AWS – especially in the field of robotics (Lin et al, 2008) – is marked by the terrorist attacks conducted on 11 September 2001 in the US and their aftermath (Singer, 2010). Most notably, weaponized drones such as the US MQ-9 Reaper (by General Atomics) or the X-47 series (by Northrop Grumman) were rapidly developed during a time that was labelled 'the War on Terror'. Subsequently, the notion of an 'Age of Autonomous Systems' in warfare (Worcester, 2015) or calls to urgently start 'preparing for

war in the robotic age' (Work and Brimley, 2014) have emerged in recent years. These visions were strongly driven by the military utilization of more recent forms of AI such as machine learning tools or artificial neural networks (Cummings, 2017). The latest iteration of an innovative AI-related hype (Bareis et al, 2023) – at the time of writing – has been featured via the concept of 'generative AI', which has also entered both the vocabularies and the imaginations of military industries (Goecks and Waytowich, 2024) and armed forces (Lushenko and Carter, 2024).

The realities of AWS also include the dynamic between fact and fiction. They are often influenced by popular culture and inspired by more general assumptions about AI and its relationships to the human in the broadest sense, echoing tropes such as the substitution of humans by machines, or the risks of intelligent machines that are no longer subjected to human control. These realities are thus shaped by a mix of intentional framing and larger sociocultural narratives that act on a discursive rather than an individual level. A well-known position is the idea that autonomous weapons can be seen as more fair or just (Arkin, 2009). The obvious ethical and critical questions are 'What enables the framing of an instrument for surveillance and killing as an inherently ethical instrument? What kind of sociopolitical rationale underpins such a framing?' (cf. Schwarz, 2018). In other words, the framing of ethicality is produced by but also produces particular realities of autonomous weapons, for example as contested moral arbiters or dystopian slaughter machines.

The book also touches upon conceptual approaches to autonomous warfare technologies, shaping the ways in which they are modelled, developed or advertised in their interactions with humans. Well-known examples for this in the context of regulating autonomous weapons are the often normatively utilized descriptors of 'meaningful human control' on the part of humans and 'autonomous' on the part of machines. It is necessary to stress that both bear meanings that are constructed and constructive rather than descriptive (Bächle, 2023). These dynamic meanings prove to be particularly challenging in legal assessments that require a normative stance. Scholars have started to challenge the apparent consensus that human judgement is to be treated as a legal requirement in the context of AWS, questioning the commonly shared foundations of regulation rooted in ideas such as explainability, accountability, dignity or the principle of humanity. When AI-enabled technologies are compared to other types of weapons, one issue is still not settled: 'If we want better human control, we need to explain why' (Lubell, 2023). Interestingly, this condition is not verbalized as strongly for other types of weapons systems (such as anti-personnel landmines), which can be equally harmful but are not met with a similar concern, involving explicit human oversight. This is not to say that weapons of mass destruction (biological, chemical, radiological or

nuclear) are any less consequential. However, their development and actual employment largely pre-dates international regulatory frameworks (most notably that under the United Nations) and presents a different historical context. Also, the world might simply have had more time to get used to them. A technology such as AWS, seen by many as genuinely novel, arguably triggers a heightened sense of uncertainty and attention. Paired with the complexities of a multicentred geopolitical context and competing media realities, the differing perception of urgency and threat – this is one of the book's assumptions – is attributed to the fluctuating nature of the realities of autonomous weapons.

Conceptually, the realities of autonomous weapons are connected – but not identical – to what [Jasanoff and Kim \(2015\)](#) call sociotechnical imaginaries. According to their definition, sociotechnical imaginaries are 'collectively held, institutionally stabilised, and publicly performed visions of desirable futures ... and supportive of advances in science and technology' ([Jasanoff and Kim, 2009](#): 120). Sociotechnical imaginaries inform realities of autonomous weapons, especially in the field of state discourse and political communication, as communication in the public arena presupposes a shared understanding among larger social groups. In these public arenas, imaginaries point to, as [Jasanoff \(2015\)](#) argues, 'positive visions of social progress ... [and], tacitly or explicitly, with the obverse – shared fears of harms that might be incurred through invention and innovation, or of course the failure to innovate' ([Jasanoff, 2015](#): 4–5).

However, the understanding of realities in this book goes further. The very idea of AWS is closely interwoven with military histories and current hopes and developments towards machine intelligence and the possibilities of human agency. Historically, AWS' military imaginations, contexts and discourses are continuous and dynamic developments that cannot be tied to one singular event or technical breakthrough; rather, they can only be understood through the lens of their technical precursors and the shared norms and values of their time. The understandings that are associated with AWS also vary geographically, which means they cannot be reduced to one emblematic representation – often US- and Eurocentric – such as of killer robots or drone swarms ([Arquilla and Ronfeldt, 2000](#); [Coeckelbergh, 2011](#)). The realities of autonomous weapons take into account popular aesthetics, fictions, policies and corporate discourses that can differ significantly cross-culturally.

This overlap between the technological paradigms and their larger societal and cultural manifestations show that AWS are not only shared and understood in clearly articulated visions or imaginaries. They are characterized by mediation, frictions and hybridity that create a reality of their own. For example, efforts to predict future military threats, conflict scenarios and simulations under the condition of *potential* technological

advancements is equivalent to the creation of ‘as if’ realities. These *virtual* – potentially innate – realities of AWS shape the *actual* debates on their ethical and legal ramifications. They inform ways of representation in public discourse and the basis of political decision making today. For this reason, this book argues that AWS are *created* as objects, while at the same time drawing ‘distinctions between life and death, human and machine, culture and technology’ (Karppi, Böhlen and Granata, 2018: 107).

Media technologies play an important role in this (for example, Hoskins and O’Loughlin, 2015), which is not limited to merely representing warfare and warfare technologies. Baudrillard (1995) famously commented that the Gulf War in 1991 was not taking place. He described its reality as not bound to the battleground and constituted by actual combat operations, but as coming into effect via mediated, mainly televised form, broadcasting live into the living rooms of North American and European citizens. Mediatized and mediated warfare creates simulations of war, representations that do not presuppose actual events. The Gulf War points to the virtuality of war. It was not necessary for it to take place to become a reality in the TV living rooms. The idea of mediated warfare became even more prevalent after the terrorist attacks on 11 September, 2001 in the US: the paradigmatic importance of drones – in particular, the claim of high-precision drone strikes – for the supposedly new forms of warfare is interrelated with normative questions associated with these weapons systems (Krasmann and Weber, 2015). From a technical standpoint, drones are not necessarily autonomous systems, but rather remote-controlled robots (unmanned combat aerial vehicles), which are able to independently perform specific subtasks such as surveillance and reconnaissance. Nevertheless, drones have made a reality *imaginable*, in which technical autonomous systems are able to perform kill decisions independently of human control (Maurer and Grae, 2021). Their prominent representation in the media also established a particular aesthetics of drone images (Richardson, 2020; see also the artwork by Weilandt in this volume). Drones are emblematic of a detached and distant view, reinforcing the narrative of technologically assisted clean, precise and efficient forms of warfare against the enemy – favourably depicted as ‘terrorist vermin’ in the 2000s (Sarasin, 2006). In a more abstract sense, drones have thus been established as both real technologies and symbols for the imagination of an expectable future, in which fully autonomous combat robots are no longer a purely fictitious possibility (Elish, 2018).

The mediated realities of AWS have to be accounted for, especially given new media environments, which incorporate virtual reality, augmentation and digital forms of decentralized communication – and, lately, the rise of synthetically produced media with text and pictures through generative AI. This not only leads to a *de facto* convergence of military and entertainment media (Lenoir and Caldwell, 2018), when, for example, interfaces used to

control drones are inspired and optimized by computer games and vice versa. But media forms themselves *co-create* the realities of warfare, often in a fuzzy overlap of temporalities and media spheres. The recent violent conflicts in Ukraine and the Middle East have highlighted the ways in which social media publics are targeted in propaganda wars (Rudloff and Appel, 2023), while public authorities try to engineer opinions in a desired fashion. The new media environments also enable first-person accounts of their experiences – evoking labels such as soldiers, terrorists, civilians and innocents – even allowing them to livestream *their own* reality of on-the-ground combat (Rarm, 2023). The use of generative AI makes it increasingly difficult to ascertain whether these accounts are authentic or fake (Antinori, 2019).

Despite these vast fields of AI applications in hybrid warfare, and somewhat paradoxically, the public perception of autonomous weapons – promoted by state actors, the militaries or industries – is often reduced to machinistic understanding of weapons: unmanned vehicles, missiles or drones. These materialistic imaginations reduce the broad range of conducting attacks to an underestimated field of digital and AI-enabled warfare (Shaw, 2016; Merrin, 2018). However, cyberattacks quite holistically aim at the manipulation or destruction of computer software or devices, which disrupt not only militaries but potentially also all aspects of our digital lives. ‘Autonomous’ computer viruses or cyberattacks do not just hit our capabilities to communicate, but potentially all mediated aspects of social reality and also the everyday material objects – the Internet of Things – that surround us (Arquilla, 2021). The manipulation of publics through misinformation, targeted leaks or the disruption of traditional media and journalism of media also thrives (Seib, 2021). This new media environment entails a power shift to platforms and private companies that are seen by many as responsible for moderating and regulating the content that they make accessible.

Acknowledging the overlap and conflation of fact and fiction, the real and the virtual, the truthful and the fake, the desired and the detested is the main conceptual baseline for the analyses presented in this book. It is established (and good) practice for current research to strongly focus on normative issues of legal and ethical regulation of AWS in order to inform policy makers, politicians, the military industry and civil society. However, the realities of autonomous weapons take a different, constructivist route to this end. This volume interrogates different media, aesthetics, histories and visions, as well as geographical particularities with regard to *their own* realities. It aims to make explicit the tacit knowledge on AWS by calling into question their taken-for-granted preconditions and manifestations. In doing so, the book also seeks to make a contribution to the relevant normative debates with their legal and political implications.

To do justice to this conceptual angle, the volume features contributions from different academic disciplines, with each of them prioritizing a

particular approach to and aspect of the wide range of different realities. To emphasize that cultural negotiations also play a major role in constructing the realities of AWS, each of the book's three sections is introduced by the work of an artist and their unique take on the phenomena in question.

The following six reflections pinpoint these complex realities of autonomous weapons by addressing common (mis)conceptions and by locating them within some of the larger contexts sketched above.

1. Autonomous weapons systems are perceived as clandestine technologies evoking curiosity and awe

AWS development is mostly classified. States conceal the latest technology advancements in the name of the national interest, with agencies and laboratories working on military innovations shielded from the public eye. Supremacy in weaponry power is trending high on many national and geostrategic security agendas (see, for example, [Bächle and Bareis \[2022\]](#) for a comparison of the US and China). It embodies a military and industrial striving for competitive advantage in a perceived arena of threat and rivalry. The urgency and legitimacy is derived from mobilizing a rhetoric of fierce international competition, thereby hailing technological innovation as a pillar of national resilience capabilities ([Bareis and Katzenbach, 2022](#)).

A prominent example is the US Defense Advanced Research Projects Agency (DARPA). DARPA was founded by President Eisenhower in 1958 and during its planning phase, it was initially coined the Special Projects Agency ([Barber Associates, 1975](#): 59). It was created in reaction to the Soviet-induced Sputnik crisis among US political elites. Still today its aim is to 'formulate and coordinate "breakthrough" technologies and capabilities for national security' (DARPA, n.d.) together with academic research and industry. A self-assuring DARPA promotional video introduces the founding motif in 1958, which hails DARPA as being 'the initiator, not the victim of strategic technological surprises' ([DARPA tv, 2018](#): 0:24).

Institutions like DARPA function as mission-oriented agencies ([Mazzucato, 2011](#)), which are legitimated by the imperative of state leadership, often at the cost of democratic processes. It is common that they trade transparency and public accountability for speed and secrecy in the name of the national interest. The role of public funding and the 'hidden Developmental State' ([Block, 2008](#)) with agencies such as DARPA (or its European equivalent, the Joint European Disruptive Initiative: [JEDI Foundation, n.d.](#)) have changed throughout the years to become more similar to a network of public-private partnerships. State agencies cooperate with major technology corporations contributing to military and intelligence imperatives. Some of these projects were famously leaked in the past, such as the common surveillance practices

by the US, which were made public by former intelligence employee Edward Snowden (Lyon, 2015). Only after protests by Google employees did the public learn about plans to collaborate with the Pentagon under the name of Project Maven, which in 2018 incorporated the company's AI technology in order to analyse drone surveillance footage (Simonite, 2021; see also Heffernan's chapter in this volume). The idea of a hidden power structure gets also easily misused, for example by the first Trump administration and in its aftermath by utilizing a 'deep state' conspiracy theory (Horwitz, 2022).

The state's role in facilitating military innovation recedes and leaves a gap that is filled by the private sector, which often comes at the cost of ethical considerations. In the US, Silicon Valley is increasingly setting the agenda for military innovation and focuses especially on dual-use technology, driven by a bottom-up, neoliberal and corporate-led strategy: 'It flips these defense acquisition processes on their heads such that industry drives, rather than responds to, militaries' requirements for new capabilities' (Lushenko and Carter, 2024). Big technology companies and billionaires provide military infrastructure and start to set the constraints on the battlefields – for example, Elon Musk influenced conflict dynamics by deciding whether Ukraine could use the Starlink satellite network or not. Private stakeholders like Musk shape the country's military operations 'on the basis of *his* fears of crisis escalation' (Lushenko and Carter, 2024).

The concealing of state agencies and the rise of power of private companies in the name of the national interest leaves room for imaginations and rumour, exploiting a deep fascination with the inaccessible, clandestine – and seemingly powerful and out of control. The military industry thrives in this context of uncertainty. This fascination can be compared to the spectacle around the highly classified Manhattan Project (1942–1946), the US research programme for developing a nuclear bomb. Technology was hailed as a means to rule the world and even heralded a new epoch of the Anthropocene: the 'nuclear age' (Hughes, 2004).

2. Autonomous weapons trigger both fascination and horror – and subscribe to common historical narratives of technology and dominance

The development and portrayal of AWS strongly speaks to and exacerbates the existing hopes and fears around AI (Cave and Dihal, 2019). Building on the age-old fascination for the latest technological development, they are simultaneously emblematic of potentially devastating effects and scenarios playing with themes of dominance and chaos (see also Bode and Mohan investigating sentiments in the Indian public, or Jones analysing the stereotypes of female-presenting AWS in cinema history in this volume).

There are two historical narratives – one rotating around the concept of dominance and the other around enhancement and extension – that entertain sentiments of fascination and horror with technology. The first regards science and technology as ways to control and cultivate nature, essentially establishing both as distinct realms (Latour, 1993). Taming the natural environment and its unpredictable force (through droughts, floods or earthquakes) rationalizes technology as a necessary force to expand and maintain human civilization through domination (Nye, 2004). Industrialization and engineering projects such as the construction of dams or railway networks epitomize the ‘technological conquest of matter’ (Marx, 2000: 197). Overcoming the physical limits of nature and matter plays on the imagination of achieving the seemingly impossible (Beckert, 2016).

The second historical discourse more directly refers to contexts of military technology as forms of enhancement and extension in an array of different techniques. First and foremost, this refers to weapons technology which makes it possible to increase the distance between soldiers and also decrease the need to engage in direct body combat. It includes swords, cannons, bows and arrows, necessitating protection gear such as shields or body armour (cf. Diamond, 1997). Another technique is the effort to enhance the biological capabilities of soldiers, a notorious example of which is the use of the methamphetamine Pervitin in the Second World War (Rasmussen, 2011). The foundational ideas of optimizing military strategy (Von Clausewitz, 1942) are instantiated in cultural techniques such as war gaming, academic approaches to capture the dynamics of war empirically (Bousquet, Grove and Shah, 2020) or the computer-assisted simulation and prediction of military scenarios today (Cayirci et al, 2022).

In both historical narratives, technology entertains notions of power and (loss of) control, either taming nature or subjugating enemies by enhancing the soldier and its abilities. Technology represents social, even magical and sublime qualities (Appadurai, 1986), or can elicit horror or repulsion, running the risk of rendering the human obsolete – a destruction even beyond imagination (Anders, 2002). It is these histories in which the cultural portrayal of autonomous weapons is rooted and finds its expression. For example, science fiction films and public campaigns cater to doomsday scenarios that mobilize pictures of merciless and destructive machines. AWS are pictured as ‘killer robots’ (see the initiative Stop Killer Robots, n.d.) or ‘slaughterbots’ (see movie Autonomous Weapons, n.d.). The idea of AI going rogue, turning against its makers and humanity at large, is another common trope in the theme of loss of control and taming. Autonomous and human-like machines evoke fears of a lethal intelligence that could outsmart humans. The (real) opacity of these AI-based systems, which cannot be comprehended by the majority of people, fosters the idea of networked architectures making themselves independent and taking on a ‘life’ of their

own. Certainly, a great deal of the intimidation evoked by the sublime aura of AWS is produced through the limitless force of human imagination, quickly crossing the boundaries of fact and fiction. Take motifs of a sinister HAL 9000 computer in *Space Odyssey*, the idea of a cybernetic android killer such as *The Terminator* or scenarios of killer drone swarms (also depicted in the video Slaughterbots – see above), which reverberates with Alfred Hitchcock’s menacing motif in *The Birds*. These portrayals of fictional destructive lethal machinery are sustainably shaping the public and political perceptions of AWS and are contributing to a large extent to their popularity.

3. Autonomous weapons as tools in psychological warfare and strategic communication

Putting into perspective the current detrimental effects of AWS, it is certainly noteworthy that conventional firearms – at the time of writing in 2024 – inflict more harm and human suffering than AI-assisted military technologies. In the US alone, the latest complete data show that in 2021, 48,830 people died from gun-related violence ([Gramlich, 2023](#)), with some sources suggesting 40,871 deaths for 2024 ([Gun Violence Archive, 2024](#)). In Mexico, official numbers give 22,309 gun-related deaths in 2022 ([Álvarez, 2023](#)), and in South Africa, 8,388 deaths in 2021, with numbers on the rise, as between October and December 2022 alone, more than 7,500 people died through firearms ([Kirsten, 2023](#) and [Khumalo, 2023](#)). In 2022 in the US alone, the firearm and ammunition industry was responsible for as much as \$80.73 billion in total economic activity of the country ([NSSE, 2022](#)). In comparison, in the same year, the *global* military AI market size was substantially smaller, valued at \$7.4 billion in 2022 ([Grand View Research, n.d.](#)). However, the market size of autonomous military weapons is rising, with an estimated compound annual growing rate of 10.4% for the coming years ([Business Research Company, 2024](#)). Pistols and rifles seem to be perceived as conventional, almost traditional, and are more accepted among the public, even being hailed in parts of pop culture as a prop of masculinity. They have been widely disseminated and decentralized in use around the globe for decades. Also, they are comparably low-tech engineered and remain largely unchecked in trade – despite a global Arms Trade Treaty, although one which has not been signed by nations with major production sites ([Amnesty International, n.d.](#)). To give a comparison, the elaboration and highly differentiated debates on the future of warfare, subsequent AWS risk scenarios, and the assessments of their ethical repercussions seem strangely detached from the scale of harm and violence caused by conventional guns. Politically and normatively, it is harder to draw attention to the risks and harms of contemporary conventional (‘stupid’) weapons, as they lack the nimbus of glitzy AI-enabled future warfare, even though their global use and

trade is beyond any meaningful human control. This is a standard which is often raised in AWS regulatory debates.

The main difference seems to be that the rhetorical drumbeat in relation to AWS is already part of modern warfare and used as an effective tool in strategic communication. Suggestions of AI capabilities, woven into the political rhetoric of state actors, can be an influential vehicle in the deterrence of enemies (Johnson, 2020). The praise of AWS capabilities can also be understood as a means of psychological warfare, with the aim to clarify one's position in the geopolitical order and strategically contain, defend or strive for hegemonic aspirations (see Bächle and Liu's chapter in this volume). As argued elsewhere, a comparison between Chinese and US AWS imaginaries shows that '[military] AI is in both cases regarded as a means to realise these socio-political ideals, with supremacy achieved by technological prowess being a shared theme for both' (Bächle and Bareis, 2022: 7).

The political and symbolic communication of AWS is not only used for deterrence but also mirrors cultural particularities and changes of the material actuations on the battlefield. Besides the conceptual vagueness, the terminology applied in the discussions on AWS is commonly contextualized in larger narratives. Often, machine capabilities in weaponry allude to broadly known mythological and anthropomorphic references, or borrow motifs from popular culture, religious or historical tropes. For example, the US counter rocket, artillery and mortar (C-RAM) close-in weapon system Phalanx, which has been in service since the 1980s, takes its reference from the ancient Greek war practice, where spears units formed a phalanx formation in battle against the enemy. The C-RAM vulcan cannon can be mounted on ships, and, next to the Greek reference for its name, the Navy's crews gave the Phalanx systems the pet name R2-D2 because their appearance is reminiscent of the droid R2-D2 from the *Star Wars* films (Stoner, 2009). At the time of writing, recent examples of attempts to foreground a branding of AI in military contexts can be found in the employment of target recommender systems. The Israel Defense Forces (IDF) use AI in the military operations in Gaza following the terrorist attacks by Hamas on Israeli civilians on 7 October 2023. The employed AI system is called Habsora, the 'gospel' – which translates into 'holy message' in biblical terms, building on an AI-powered database called Lavender for target classification, scoring and subsequent bombing of alleged terrorists (Abraham, 2024). Also, Ukrainian forces use recommender systems in the war against Russian troops, the so-called Geographic Information System Art for Artillery (GIS ARTA, n.d.) for fire missions, also being coined by its Ukrainian developer Sherstyuk 'Uber for Artillery' (Bruno, 2022). GIS Arta speeds up artillery missions by sourcing real-time data 'from drones, targets reported by forward observers armed with cell phones, counter battery radars, and satellite-based imagery' (Zikusoka, 2023).

The references to different motifs and imaginaries are meant to reach objectives in political and public communication – but as a side effect complicate shared understandings of military AI and AWS in the wider public, academic or political arenas. Their meanings become loaded with associations and references that can lead to appeal, but also face the risk of further misguiding and mystifying the technical functionality of AWS. Technology is subjected to interpretations in a discursive realm that is already heavily loaded with emotions, normative positioning and geopolitical power striving.

As another side effect, the overemphasis on the imagined potentials of modern intelligent weapons shifts the focus away from the very conventional and often very ‘stupid’ weaponry such as rifles or pistols, as mentioned earlier, or mass-produced simplistic drones (for example, the Iranian–Russian cooperation to produce Shahed-136 drones to attack Ukraine; [Bennett and Ilyushina, 2023](#)). They pose a threat by way of sheer quantity and easy access, as they can also be manufactured or commissioned by nonstate actors. The use of AWS abilities in contemporary battlefields shows no monolithic or linear development to fully automated battle machines. Rather than taking over the entire range of tasks in identifying, tracking and eliminating enemy objects, the current automation wave resembles a mix in weapon systems and approaches. For example, in the Ukrainian war, civil improvised drones are mounted with hand grenades and bombs to be used by Ukrainian forces, alongside conventional rocket, artillery and missile (RAM) ammunition. Soviet equipment from the Cold War and improvised dual-use gadgets from the civil realm blend with the latest AI analytics and civilian spying ([The Economist, 2024](#)). This not only proves the need for or capability of improvisation, but also fulfils the purposes of political communication. The collaboration of the civil and the commercial sectors with the Ukrainian military forces can be promoted as a sign of union, symbolizing hope and resilience for a nation in an exceptional state of emergency.

4. Autonomous weapons epitomize the fluidity of violence

From the perspective of international relations, AWS can be seen as a continuation of a prerogative of violence that transcends national borders and acts as an event outside of temporal and spatial limitations. The 2001 US Bush doctrine of the ‘War on Terror’ declared the necessity of effectively intervening against terrorist groups, no matter where they are located. The rise of violent nonstate actors operating across borders brings with it the risk of unchecked dissemination of weaponry among warlords, terrorists and private armies. Military terrorist groups such as ISIS or al-Qaeda are part of the privatization of war as much as state mercenaries like US Blackwater

fighting in the Second Gulf war or the Russian Wagner group operating on the African continent. Here, easy-access and high-quantity automatic weapons must be regarded as a particular threat in the hands of these actors, employing harmful technologies outside of regulatory frameworks. Building largely on dual-use components, and being to a large extent software-based, makes the dissemination easier (often in a downloadable, intangible form) and at the same time more difficult to trace compared to conventional weapons.

AWS make distinctions ever more obsolete as the interoperability of algorithms between different use domains easily conflates categories such as civilian and military, corporate and government, and private and public. Military decision-making tasks in the realm of selection and targeting are almost indistinguishable from recommender systems used on commercial entertainment or social media platforms digesting content. Similar conflation happens in the realm of 3D printing, which produce both commercial tools or weapon components, or in the field of exoskeletons that may either support workers in factories or enhance the physical capabilities of soldiers.

From the perspective of state sovereignty, the erosion and conflation of state-controlled violence calls for a technical-military apparatus that enforces spatial and temporal dominance as a reaction. Intelligence agencies of states like the US enforce a prerogative of worldwide surveillance, categorizing, tracking and eliminating potential enemies through air strikes. For example, Rooke argues in her chapter in this volume that the US Air Force and its declaration of ‘air-mindedness’ became a pivotal factor in a ‘hierarchical ordering that places the US at the top of this dominant spatiotemporality’. From this perspective, AWS in the form of drones and or AI-enabled cyberattacks resemble a form of warfare that executes power through both writing and simplistic categorizing (enemy/ally, hostage/terrorist) – combined with the kinetic ability to execute lethal power anytime and anywhere. The prerogative of air-mindedness goes along with the power to make perpetrators, victims or injustices (dis)appear, as they happen far outside the auspices of international humanitarian law (IHL), human rights and public accountability. Rupka and Baggiarini argue that air warfare conducted through drones resembles a ‘militarised gaze’, which is ‘both everywhere and nowhere, whilst its power successfully enables the rendering of populations into the terrain of state legibility and security so that they might become governable subjects’ (2018: 13). With or without an official declaration of war, states can operate effectively in the geopolitical realm without taking accountability for their actions. Violence acts without having troops on the ground, causing difficulties for the normative international system to hold perpetrators accountable.

An example of the practice of automating enemyship is the conflict that started following the attack by Hamas on Israel on 7 October 2023. The use of the Lavender and Habsora systems by the IDF fuelled speculation on

how target recommendation of alleged ‘militant suspects’ can be automated. According to statements that were reportedly made by IDF soldiers, recommender systems were used for enemy detection, scoring people in the Gaza Strip with a rating of between 1 and 100, expressing how likely it was that they were to be a militant (Abraham, 2024). Automating target classification was believed to play ‘a critical role in building lists of individuals authorised to be assassinated’ by airstrikes (Davies et al, 2023; Abu Elouf, 2025). The consequent massive bombing of the Gaza Strip in response to the Hamas attacks led to immense civilian suffering and human rights violations, raising issues of proportionality, enemy/civilian distinction and accountability of Israeli bombings in respect to IHL.

In more general terms, for the perception of AWS, this type of warfare practice underscores how the *automation* of target recognition alone involves the critical issues of surveillance, acceleration and dehumanization of war, and entails the risk of reducing human lives to a probability score cleared for killing. Paradoxically, the promise of increased precision and effectiveness of air strikes through surveillance and algorithmic scoring simultaneously provokes an increased psychological perception of threat and insecurity. Making the hitherto unknown tangible by transforming it via algorithmic analysis into a seemingly uncontrollable quantity of hostility has a potential impact on the likelihood of escalation. As Packer and Reeves state in their chapter in this volume, when reflecting on the recursive relationship between media technology, knowledge creation and the production of threat: ‘When applied in a political or military context, this means that enemies will always be found; with positive feedback systems, there is no way to ultimately find and neutralize all enemies; the system’s operation demands the constant discovery of new problems to solve.’ Both psychologically and kinetically, AWS represent and accelerate the enactment of violence across time and space.

5. Autonomy in weapon systems emphasizes the necessity to thoroughly theorize artificial intelligence

The ongoing efforts to regulate autonomous weapons and the use of AI has not just underlined the need to properly define what makes an autonomous weapon system really *autonomous* or what is characteristic of an AI system that sets it apart from its technological precursors; in a more abstract sense, it also places a spotlight on the many, still remaining conceptual voids surrounding current debates on autonomous systems and AI.

The rise of AI, especially accelerated by a combination of machine learning (ML) data processing capabilities, more effective sensors and advanced infrastructure, has enabled weapon systems to operate with much less human intervention than the preceding technologies could. The allure of

AI has seemingly changed attributes from *automatic* into *autonomous* systems, which sparks epistemic but also regulatory confusion (Sauer, 2016). From a disciplinary standpoint, autonomy has always been a contested concept. Also, in technical and engineering discourses, it has become a widely used term, where it commonly evokes associations of independence, intelligence, self-governance, self-sufficiency, the ability to learn and adapt (for example, orientation in unknown, unstructured and dynamic environments) or the execution of self-determined decisions (Williams, 2015). Such functional viewpoints in engineering easily conflate understandings of autonomy, trust and responsibility from the viewpoint of human moral agency (see Schwarz's chapter in this volume). As a consequence, and problematically so, technical understandings are starting to be applied in the realm of human ethics, resulting in a mechanical weighing of human value similar to mathematical calculation and algorithmic optimization.

It seems common practice among military and political stakeholders to reinterpret the concept of autonomy and AI to particular means, which often comes at the cost of nullifying the conceptual or practical use of the term. A position paper submitted in 2018 to the Convention on Certain Conventional Weapons (CCW) negotiations in Geneva by the German delegation, for example, states the following: 'Having the ability to learn and develop self-awareness constitutes an indispensable attribute to be used to define individual functions or weapon systems as autonomous' (Permanent Representation of the Federal Republic of Germany to the Conference on Disarmament in Geneva, 2018). Tying 'self-awareness' to a definition of machine autonomy is absurd, for obvious reasons. However, it can have a rhetorical function at the negotiation table. In the same year, the Chinese delegation at the CCW defined a necessary feature of AWS with the following condition: 'once started there is no way to terminate the device' (CCW Group of Governmental Experts on LAWS, 2018: 1). This entertains the no less absurd scenario of an AI gone rogue, completely outside of human control. Partly due to the terminological confusion and strategic vagueness, the CCW negotiations have become gridlocked and are far from reaching a consensus that would honour IHL in a serious attempt to regulate the actual reality of AWS (see also Suchman's chapter in this volume). Overall, some public and military interpretations of autonomy in the AWS debate articulate sensationalist fiction and have succeeded in capturing not only public discourses (see Cave and Dihal, 2019; Campolo and Crawford, 2020), but also debates in research (Natale and Ballatore, 2020), and have found their way in the regulatory arena (see Bächle and Bareis, 2022).

In addition, more conceptually grounded notions of autonomy in automated warfare are no historically fixed constants, but are subject to change. Ernst, for example, argues in his chapter in this volume that rather

than dealing with self-sufficient and autonomous battle machines such as drones, tanks or ships, autonomy in contemporary military visions is better understood as resilient *networks* between connected agents and infrastructures. Combat clouds engage in warfighting, highlighting the importance of communication hubs or real-time data analytics. Projects such as the European Future Combat Air System (FCAS) also point in this direction (see Hälterlein's chapter in this volume). These examples of recommender systems or combat clouds highlight the various elements in warfare that are increasingly automated and hence different from the idea of a self-sustained 'autonomous' battle machine, as already noted.

Contrasting with many of the prevalent approaches used in political science, law or philosophy, which understand autonomy as a distinct quality associated with the human condition, these examples also indicate that autonomy instead emerges performatively within social or material structures and is thus subject to cultural change and national differences (Haraway, 2006). It sheds light on the *mechanisms* that provoke what could be called 'autonomy effects'. This performative understanding of autonomy also helps to look past many of the thought experiments and fictions that consider a world in which machines will finally have acquired human-like abilities. It is not only important to unpack the metaphorical uses and the practices of how autonomy is made (Noorman and Johnson, 2014), but also makes visible the networked and automated infrastructures that underlie imaginations around AWS.

It is exactly this interpretative openness of the term 'autonomy' that predestines it to be applied in various contexts and with tailor-made meanings. The erosion of its semantic qualities not only calls for a thorough reflection of the premises used, but even more importantly for a general theorization of AI.

6. Autonomous weapons challenge our understanding of what is human and foreground the relationship between humans and machines

As part of the shift away from solely looking at the suggested autonomy of a distinct system, it is particularly necessary to assess the human/machine relationship. Conceptually, reality of the existing 'human-machine autonomies' (Suchman and Weber, 2016) – rather than autonomous machines – have important roots in cybernetic theory, establishing an analogy between humans and machines via a universally applicable analogy: 'The systems analogy, as well as the understanding of systems as goal directed and purposeful, is a central precondition for the idea of the 'autonomy' of so-called smart and intelligent (war) machines' (Suchman and Weber, 2016: 83–84).

While the human/machine systems analogy is a theoretical precondition of common ideas of autonomy and autonomous weapons – often drawing false equivalencies, as discussed in the previous section – it paradoxically also elicits the paradigmatic question on differentiating humans and machines. In the most basic terms, this means asking about the human element, whether it being part of ‘the loop’ or in ‘meaningful control’. Imagining weapons necessarily entails imagining a version of the human. It concerns their role in the relation with machines, as in ethical, political or legal categories: when and how should a human be able to intervene, should a human necessarily be involved in the decision to kill another human and so on.

On a par with this, the military discourse on AWS is no longer purely technocentric, but moves towards both the human/machine relationship or even human-centricity. ‘Manned/unmanned teaming’, ‘human augmentation’ (UK Ministry of Defence/Bundeswehr Office for Defence Planning, 2021), or ‘the enhanced soldier’ (de Boisboissel and Le Masson, 2021) take into account and shape these technological, conceptual and strategic shifts. Augmentation has even been identified as the up-and-coming paradigm in discussions of autonomous weapons and military AI (cf. Favaro and Schwarz, 2022).

‘The human’ has always been present in a functional sense, because it is a vital – but often only pro forma – point of reference. Debates on political, legal or ethical debates on responsibility, dignity, intentionality and so on require a human to pin them on: as long as ‘the human’ as a function is formally in the picture, the otherwise autonomous machine seems more legitimate. However, it is high time to direct our attention to humans. This means that rather than solely discussing AWS as technical entities, we need to focus on human/machine interactions and relations, and the ways in which they extend human capabilities of taking action or decrease the levels of skill or competence. It also means acknowledging that fully autonomous systems are – even though they foster our fascination and horror – a rather skewed narrative.

The book’s sections and individual contributions

The book’s structure introduces three individual sections that engage with current realities of autonomous weapons. Each section analyses autonomous weapons from a particular trope of perspective: 1. Narratives and Theories, 2. Technologies and Materialities and 3. Politics and Ethics. The beginning of each section is introduced by an artist and their vision on autonomous weapons. The sectioning adheres to an analysis of the different meanings articulated across these domains that constitute the realities of AWS and powerfully influence how we perceive and engage with this technology.

Section I: Narratives and Theories

This section looks at cultural texts that are marked as fiction (for example, science-fiction films and novels) as well as those marked as nonfiction in research. Its goal is to analyse the potentials, risks, narratives and aesthetics that are associated with AWS:

- *ARTWORK*. «The Unreachable Myth: Killing Unknown Victims with Insensible Means by Unidentified Perpetrators for Unapparent Reasons». By Jinyu Wang, 2023
- Jennifer Rooke: ‘The AI/lure of US Airpower: Imaginaries of Disruption in the Pursuit of Technological Superiority Since the Early 20th Century’
- Rebecca Jones: ‘From *Maschinenmensch* to Robot Bubs: Female-Presenting Autonomous Weapons Systems in Live-Action Films from 1927–2022’
- Teresa Heffernan: ‘Autonomous Weapons in Fiction and the Fiction of Autonomous Weapons’
- Ingvild Bode and Shimona Mohan: ‘From the Reel to the Real: Narratives of Weaponized Artificial Intelligence Technologies in India’

The artwork «The Unreachable Myth» by Jinyu Wang opens the section by pointing to the functionality of AWS in an illustrative storytelling format, inspired by the sci-fi aesthetics from the 1970s. In ‘The AI-Lure of US Airpower: Imaginaries of Disruption in the Pursuit of Technological Superiority since the Early 20th Century’, Jennifer Rooke analyses the military imaginaries that shape the use of automated pattern and target recognition technologies by the US Air Force within its intelligence, surveillance and reconnaissance operations. She traces how the US doctrine of air-mindedness emerged and developed into a hegemonic prerogative to achieve superiority across the global sky by political, legal and technical means. The chapter by Rebecca Jones, ‘From *Maschinenmensch* to Robot Bubs: Female-Presenting Autonomous Weapons Systems in Live-Action Films from 1927–2022’, looks at the evolution of AWS through cinematic history with a particular focus on female representations of weapons in humanoid form. While weapons are commonly associated with male representations (with the Terminator as the most common trope), the representation of warfare is highly gendered. ‘Female-presenting autonomous weapons’ mirror the patriarchal gazes of their times that are merged with technical features that saliently negotiate stereotypical imaginations of the female. Jones analyses how female-presenting AWS negotiate fears and hopes of subordination, domination or (loss of) control, once more stressing how gender, power and the technical are constantly reworked with AWS. Teresa Heffernan’s analysis ‘Autonomous Weapons in

Fiction and the Fiction of Autonomous Weapons' also investigates the domain of fiction. She poses the question how the literal readings of fiction to animate real machines distract from the real-world development of this technology. By making reference to Karel Čapek's play *R.U.R. (Rossum's Universal Robots)* (1923) and James Cameron's *The Terminator* (1984) and its sequels, she shows how fiction has long connected the fetishization of this technology to industrial research and development. Ingvild Bode and Shimona Mohan take the reader to a completely different geographical part of the world and interrogate in 'From the Reel to the Real: Narratives of Weaponized Artificial Intelligence Technologies in India' public perspectives on AWS. Analysing survey data collected in January 2023 in India, they find that weaponized AI narratives of Anglophone countries have a high resonance among Indian respondents. At the same time, Indian respondents also share distinct ways of narrating AI technologies that integrate cultural particularities, drawing, for example, on Indian mythology and folklore as well as the mixing of genres that are typical of most Indian film productions.

Section II. Technologies and Materialities

This section looks at the concepts that are frequently applied when explaining the technological and material particularities of AWS. These include specific notions of decision making, technological agency or autonomy and debates around human-machine entanglements such as 'meaningful human control'. At the same time, the discourses on weapons technologies are always historically interwoven with the conceptual transformation of warfare and show how materialities influence particular military doctrines and vice versa:

- *ARTWORK*. «Transformator». By Peter Behrbohm, since 2013
- Lucy Suchmann: 'Il/legal War: Expanding the Frame of Meaningful Human Control from Military Operations to Democratic Governance'
- Christoph Ernst: 'From Network-Centric Warfare to Autonomous Warfighting Networks: Recontextualizing Autonomous Weapon Systems Imaginaries'
- Jens Hälderlein: 'Governing Autonomies: Imagining Responsible Artificial Intelligence in the "Future Combat Air System" European Armament Project'
- Jeremy Packer and Joshua Reeves: 'New Media, New Enemies: The Emergence of Automated Weapons in Counterterrorism'

The artwork called «Transformator» by the artist Peter Behrbohm displays the materiality and agency of an operational autonomous rocket launcher, placed in public space and policing the streets of Germany. In 'Il/legal

War: Expanding the Frame of Meaningful Human Control from Military Operations to Democratic Governance’, Lucy Suchman comments on the viewpoints on the legality of AWS. She scrutinizes the debates of war that sustain militarism and how they might be challenged, not only from within but also beyond the project of arms control. She draws from her own 2016 testimony at the UN Convention on Certain Conventional Weapons (CCW), where she argued against the capacity of AWS to adhere to IHL. In her chapter she puts forward requirements of situational awareness and adherence to the principle of distinction as a necessary condition for lawful autonomy that remains unfulfilled by AWS. Christoph Ernst also points to the complicated picture of autonomy and human-machine entanglement in ‘[From Network-Centric Warfare to Autonomous Warfighting Networks: Recontextualizing Autonomous Weapon Systems Imaginaries](#)’. He argues that the relevance of network-centricity for AWS imaginaries and the associated visions of future warfare is often overlooked. Ernst shows how ideas on network-centric warfare developed during the 1990s and early 2000s are the historical origins that provide important scripts and metaphors for contemporary AWS debates. By tracing this historical legacy, he argues that current AWS imaginaries contain the infrastructural vision of what can be called ‘autonomous warfighting networks’. Jens Hälterlein applies these notions of networked warfare to a concrete case study in Europe. In ‘Governing Autonomies: Imagining Responsible Artificial Intelligence in the “Future Combat Air System” European Armament Project’, he analyses how the FCAS project imagines AI in the year 2040 as the means to enhance human decision making under the conditions of responsibility and accountability. By scrutinizing the so-called ‘FCAS Ethical AI Demonstrator’, he shows how FCAS applies a liberal anthropology, featuring individual responsabilization of operators and environmental management of behaviour through ethics by design – which, in his view, fails to live up to FCAS’ own claims of enhancing human responsibility and accountability. The section concludes with ‘[New Media, New Enemies: The Emergence of Automated Weapons in Counterterrorism](#)’, in which Jeremy Packer and Joshua Reeves dive into the recursive relationship between media technology, knowledge creation and the production of political and military enemies. Through the prism of media theory, they show how media technologies produce new ways of perceiving the surrounding world and the threats that lurk therein. When applied in political or military contexts, they argue, enemies will always be uncovered, as enhanced visibility automatically brings new enemyship to the surface. They observe that with positive feedback systems, there is no way to ultimately find and neutralize all enemies. The system’s operation demands the constant discovery of new problems to solve – and villains to kill.

Section III: Politics and Ethics

This section looks at the understandings and meanings of LAWS that are applied in political and ethical contexts, which are often based on ‘as if’ scenarios. Translated into political action, these meanings and their underlying assumptions create realities in their own right. While the actual technological capabilities are still limited, their anticipated futures nonetheless have severe implications for global security policies, regulatory and legal initiatives or military operations in light of their use by states as well as nonstate actors:

- *ARTWORK*. «XCI|XCIX, (91|99)». By Johannes Weilandt, 2023
- Elke Schwarz: ‘Engineering Moral Failure? The Challenges of Algorithmic Ethics for Lethal Autonomous Weapon Systems’
- Bernhard Seidl: ‘Legitimizing and Contesting Lethal Autonomous Weapons Systems in Japan: A Multilayered Analysis of Public Discourse’
- Jutta Weber: ‘The Reality of (Past) Future Air Combat Systems: On Climate Wars, Carbon Costs and Rare Earth Elements’
- Thomas Christian Bächle and Xiran Liu: ‘Showcasing Power, Performing Responsibility? Introducing Military Artificial Intelligence Discourses in China’

Johannes Weilandt opens the section with the artwork «XCI|XCIX, (91|99)», which shows machine-generated air images by precision and laser-guided weapons from the Second Gulf War and Yugoslav Wars of the 1990s. While now being omnipresent in times of drone and remote warfare, the images back then were broadcast on television and hailed the beginning of the era of ‘smart bombs’. In ‘Engineering Moral Failure? The Challenges of Algorithmic Ethics for Lethal Autonomous Weapon Systems’, Elke Schwarz observes that over a decade’s worth of discussions on the ethical and legal implications of AWS have yielded limited results. Problematically, these discussions are marred by unhelpful conflation, with both human agency and machine agency being read through a technological lens wherein functional equivalences are drawn between the two. She examines these discourses and their logical foundations and argues that rather than helping to make sense of the specific demand of moral agency and responsibility in the context of AWS, they take us further away from understanding moral concerns as exclusively related to humans. The political and ethical understanding of AWS remains contested – not only ethically, as Schwarz shows, but also from the viewpoint of political institutions across the globe. In ‘Legitimizing and Contesting Lethal Autonomous Weapons Systems in Japan: A Multilayered Analysis of Public Discourse’, Bernhard Seidl conducts an analysis of public discourse on lethal autonomous weapon systems (LAWS) in Japan. He examines texts produced

in or for the public sphere, including policy documents, nongovernmental organization (NGO) material and newspapers, in order to understand how the adoption of LAWS in Japan is legitimized and contested. Seidl places his findings in the context of Japan's evolving security identity and reveals the interplay between the discourse layers and actors, realized in a language influenced by facts and imaginaries particular to the Japanese context. Evoking so much attention and allure, AWS not only have the power to attract political state interest – they also mute and sideline their hazardous side effects. In 'The Reality of (Past) Future Air Combat Systems: On Climate Wars, Carbon Costs and Rare Earth Elements', Jutta Weber discusses the carbon costs, greenhouse gas (GHG) emissions and the rare earth metal dependencies of present and future military systems. She emphasizes that the world's militaries and associated military technology industries are responsible for around 5.5 percent of global GHG emissions – without counting postwar recovery. Looking concretely at Future Combat Air Programmes and the realities of their development and deployment in the future, she argues that the emissions will ultimately inhibit the realization of these systems, rendering their future something that has already passed. Finally, in their chapter, 'Showcasing Power, Performing Responsibility? Introducing Military Artificial Intelligence Discourses in China', Thomas Christian Bächle and Xiran Liu focus on China as a major geopolitical power, which is constructed as antagonist to European and American interests. They argue that besides the actual functionality of these technologies, AI takes particular meanings that are actively utilized for government legitimacy or deterrence in political discourses. Their analysis of state media representations of military AI suggests a noteworthy gap between public agendas that promote a responsible use of AI and the actual employment of these technologies, which are used for deterrence and intimidation.

Filmography

2001: A Space Odyssey (1968) Directed by Stanley Kubrick, US: Metro-Goldwyn-Mayer.

The Birds (1963) Directed by Alfred Hitchcock, US: Alfred Hitchcock Productions.

The Terminator (1984) Directed by James Cameron, US: Hemdale, Pacific Western Productions, Euro Film Funding & Cinema '84.

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