European Journal of International Security (2026), **11**, 399–418
doi:10.1017/eis.2025.10015

EJIS

RESEARCH ARTICLE

Military demonstrations as digital spectacles: How virtual presentations of AI decision-support systems shape perceptions of war and security

Robin Vanderborght[1] and Anna Nadibaidze[2]

[1]Political Science, University of Antwerp, Antwerp, Belgium and [2]Center for War Studies, University of Southern Denmark, Odense, Denmark
Corresponding author: Robin Vanderborght; Email: robin.vanderborght@uantwerpen.be

(Received 19 November 2024; revised 12 June 2025; accepted 16 June 2025)

Abstract
The growing reliance of militaries on artificial intelligence (AI) and machine learning (ML) technologies means that private software companies are assuming an increasingly central role in the conception and development of the tools of contemporary warfare. While most of the existing debate on algorithmic warfare has focused on autonomous weapons systems, the rise of AI-enabled software capabilities has largely been neglected. In this article, we examine how developers of AI- and ML-based military decision-support systems visually promote their software products. Building on insights from Critical Security Studies and Science and Technology Studies, we develop the argument that 'virtual military demonstrations', as we label this practice, facilitate technology companies' claim of epistemic authority on the future of war. This allows commercial actors to represent algorithmic warfare as a strategic and moral imperative for the survival of Western democracies. Through detailed studies of virtual demonstrations by Palantir and Anduril, two US-based defence tech companies, we illustrate how algorithmic warfare is visually and discursively represented as a clean, controllable, and precise business, disconnected from the lived experiences of innocent victims and their environments. We conclude that the obfuscation of the realities of warfare in such a way has important implications which warrant further scrutiny.

Keywords: algorithmic warfare; artificial intelligence; military decision-support systems; military demonstrations; virtual war

Introduction

In March 2024, the United States (US) Army awarded approximately $178 million to software company Palantir for developing and building the Tactical Intelligence Targeting Access Node, or TITAN. TITAN is a ground system integrating artificial intelligence (AI) and machine learning (ML) technologies for processing intelligence and supporting targeting.[1] Palantir subsequently released a promotional video which visually demonstrates how TITAN would work, claiming that the system 'delivers AI at the edge that can be tailored to the mission, ensuring soldiers have the latest and most relevant models wherever the mission takes them, even as the threat landscape

[1]Courtney Albon and Colin Demarest, 'Army chooses Palantir to build next-generation targeting system', *Defense News* (6 March 2024), available at: {https://www.defensenews.com/artificial-intelligence/2024/03/06/army-chooses-palantir-to-build-next-generation-targeting-system/}.

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https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

evolves'.[2] One year earlier, in May 2023, another US technology company named after a *Lord of the Rings* prop – a sword, not an all-seeing orb – had unveiled its own military operating system in an eight-minute video. Anduril promotes its software program Lattice as 'a paradigm shift' in the way militaries fight, pointing out that 'affordable mass' should be the new goal of the US military: 'massive amounts of lower-cost, more intelligent, more attritable military systems' under the command of 'a single human operator' through software integrating AI and ML technologies.[3]

In recent years, the production of sensational audiovisual material has become an important practice for commercial developers of AI- and ML-based military decision-support systems to promote their products.[4] But these promotional materials are more than simple advertisements through which technology companies attempt to convince those in power to buy their products. In this article, we show that private actors construct claims of epistemic authority on the future of war through digitally constructed product presentations, such as the videos introducing Palantir's TITAN and Anduril's Lattice and which we coin as 'virtual military demonstrations'. We argue that these demonstrations entrench particular regimes of truth and knowledge production that shape contemporary understandings of algorithmic warfare as a strategic and moral imperative for the survival of Western democracies.

We develop our argument in two ways. First, we contend that virtual military demonstrations provide defence tech companies with the technological capabilities to claim epistemic authority on the role of AI and ML in coming wars. By displaying technical and military expertise in a digitally enhanced audiovisual spectacle, commercial actors present themselves as deeply knowledgeable on the conduct of future conflicts, which they suggest will be defined by large quantities of data, AI- and ML-based data analysis and decision-support systems, and massive amounts of expendable military systems – what they call 'attritable mass' – to conduct military operations. Virtual demonstrations allow companies to claim expertise while simultaneously pursuing commercial and political goals. By portraying the rapid adoption of AI and ML technologies in the military as a strategic necessity, tech corporations persuade governments and militaries to invest large amounts of financial, technological and human resources in the development and acquisition of their algorithmic tools of war.

Second, we argue that virtual military demonstrations allow commercial actors to produce knowledge that reinforces an image of war as a clean and efficient phenomenon. The visual representations of algorithmic warfare in the companies' promotional materials obscure some of the harshest realities of armed conflict: civilian injuries and deaths, infrastructural destruction, technical malfunctions, and decision-making errors. Moreover, the demonstrations, and the military decision-support systems that are promoted in them, are discursively contextualised as part of an ongoing Manichean struggle between Western democracies and their geopolitical rivals. Consequently, private technology companies' virtual demonstrations transform perceptions of

[2]Palantir, 'TITAN | Powered by Palantir', *YouTube* (22 April 2024), available at: {https://www.youtube.com/watch?v=7vwgr4xIfsw}.

[3]Anduril Industries, 'Lattice for Mission Autonomy: An unfair advantage for unrivaled deterrence', *YouTube* (4 May 2023), available at {https://www.youtube.com/watch?v=RpFFScTovII}.

[4]Military decision-support systems rely on 'predetermined features and self-learned patterns' to 'aid humans in making complex decisions, such as who or what to attack and where, when and how'. See Wen Zhou and Anna Rosalie Greipl, 'AI in military decision-making: supporting humans, not replacing them', *ICRC Humanitarian Law & Policy Blog* (29 August 2024), available at: {https://blogs.icrc.org/law-and-policy/2024/08/29/artificial-intelligence-in-military-decision-making-supporting-humans-not-replacing-them/}. In this article, we define the umbrella term AI as comprising 'computational techniques and technologies that extract statistical correlations … from large datasets, based on the adjustment of relevant parameters according to either internally or externally generated feedback'. See Lucy Suchman, 'The uncontroversial "thingness" of AI', *Big Data & Society*, 10:2 (2023), pp. 1–5 (p. 2). We define machine learning (ML) as a subset of AI which 'involves designing systems that can learn how to solve a problem on their own, using different teaching methods and a large amount of data'. See Vincent Boulanin, 'Risks and benefits of AI-enabled military decision-making', in Robin Geiss and Henning Lahmann (eds), *Research Handbook on Warfare and Artificial Intelligence* (Cheltenham: Edward Elgar Publishing, 2024), pp. 99–115 (p. 100).

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

(algorithmic) warfare as a complex political phenomenon and inherently cruel practice of organised violence into a clean, controllable, and precise business that is framed not only as a strategic but also as a moral imperative to 'safeguard the legitimacy of the democratic project itself'.[5] To illustrate our argument, we conduct in-depth case studies of virtual demonstrations featuring two AI- and ML-enabled military decision-support systems: Palantir's TITAN and Anduril's Lattice.

We make two unique contributions: first, we strengthen the existing scholarship at the intersection of International Relations (IR), Critical Security Studies, and Science and Technology Studies (STS) that focuses on the rising influence of non-traditional defence companies in the development of military software and hardware.[6] Against the backdrop of contemporary wars in Ukraine and Gaza, both Big Tech and smaller defence tech companies[7] have taken up a central position in the advance of security and military technologies, especially in the sphere of AI and ML development.[8] Technology firms such as Palantir, Anduril, Shield AI, and Helsing, but also established multinational corporations such as Google and Microsoft, are developing and promoting their products in ways that embed certain discourses and materialise long-lasting visions of future warfare, effectively reformatting these imaginations into the realities of contemporary warfighting.[9]

We conceptualise this evolution as a novel iteration of James Der Derian's notion of 'virtuous war', which he describes as 'the technical capability and ethical imperative to threaten and, if necessary, actualize violence from a distance—*with no or minimal casualties*'.[10] However, whereas Der Derian argued that the US government and military were leading the 'virtual revolution',[11] we now increasingly see private companies in the driver's seat.[12] By exposing how virtual demonstrations provide these companies with the technical means to claim epistemic authority, allowing them to

[5]Alexander C. Karp and Nicholas W. Zamiska, *The Technological Republic* (London: Penguin Press, 2025), p. 17.

[6]Roberto J. Gonzalez, *War Virtually: The Quest to Automate Conflict, Militarize Data, and Predict the Future* (Berkeley: University of California Press, 2022); Roberto J. Gonzalez, *How Big Tech and Silicon Valley Are Transforming the Military-Industrial Complex* (Providence, RI: Watson Institute for International and Public Affairs, 2024); Lauren Gould, Marijn Hoijtink, and Linde Arentze, 'Assembling the future of warfare: Innovating swarm technology within the Dutch military-industrial-commercial complex', in Tim Sweijs and Jeffrey H. Michaels (eds), *Beyond Ukraine: Debating the Future of War* (Oxford: Oxford University Press, 2024), pp. 241–264; Marijn Hoijtink, "Prototype warfare': Innovation, optimisation, and the experimental way of warfare', *European Journal of International Security*, 7:3 (2022), pp. 322–36; Elke Schwarz, 'From Blitzkrieg to blitzscaling: Assessing the impact of venture capital dynamics on military norms', *Finance and Society*, FirstView (2025), pp. 1–24. https://doi.org/10.1017/fas.2024.18; Lucy Suchman, 'Imaginaries of omniscience: Automating intelligence in the US Department of Defense', *Social Studies of Science*, 53:5 (2023), pp. 761–86.

[7]Big Tech companies refer to the largest multinational information technology (IT) firms: Apple, Alphabet (Google), Amazon, Meta (Facebook), and Microsoft. See Kean Birch and Kelly Bronson, 'Big tech', *Science as Culture*, 31:1 (2022), pp. 1–14. We define defence tech companies as relatively novel, still-scalable enterprises focused on the development and production of both hard- and software products with a military value. We differentiate them from the so-called traditional US defence industry 'primes' such as Lockheed Martin, Boeing, General Dynamics, Raytheon, and Northrop Grumman.

[8]Vera Bergengruen, 'How tech giants turned Ukraine into an AI war lab', *TIME* (8 February 2024), available at: {https://time.com/6691662/ai-ukraine-war-palantir/}; Marissa Newman, 'Palantir supplying Israel with new tools since Hamas war started', *Bloomberg* (10 January 2024), available at: {https://www.bloomberg.com/news/articles/2024-01-10/palantir-supplying-israel-with-new-tools-since-hamas-war-started}.

[9]See, for instance, Sam Biddle, 'Microsoft pitched OpenAI's DALL-E as battlefield tool for U.S. military', *The Intercept* (10 April 2024), available at: {https://theintercept.com/2024/04/10/microsoft-openai-dalle-ai-military-use/}; Colin Demarest, 'Anduril unveils software to manage hordes of drones', *C4ISRNet* (3 May 2023), available at: {https://www.c4isrnet.com/industry/2023/05/03/anduril-unveils-software-to-manage-hordes-of-drones/}; Matthew Gault, 'Palantir demos AI to fight wars but says it will be totally ethical don't worry about it', *Vice* (26 April 2023), available at: {https://www.vice.com/en/article/palantir-demos-ai-to-fight-wars-but-says-it-will-be-totally-ethical-dont-worry-about-it/}; Marijn Hoijtink and Anneroos Planqué-van Hardeveld, 'Machine learning and the platformization of the military: A study of Google's machine learning platform TensorFlow', *International Political Sociology*, 16:2 (2022), pp. 1–19; Anneroos Planqué-van Hardeveld, 'Securing the platform: How Google appropriates security', *Critical Studies on Security*, 11:3 (2023) pp. 161–75; Elke Schwarz, 'Unicorns for uniforms: On the problematic allure of VC investments in defence', *Opinio Juris* (18 September 2024), available at: {https://opiniojuris.org/2024/09/18/unicorns-for-uniforms-on-the-problematic-allure-of-vc-investments-in-defence/}.

[10]James Der Derian, 'Virtuous war/virtual theory', *International Affairs*, 76:4 (2000), pp. 771–88 (p. 772), emphasis in origin.

[11]Ibid., p. 772.

[12]Gonzalez, *War Virtually*, p. 20.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

produce knowledge and propagate their AI- and ML-based decision-support systems as strategic and ethical imperatives for Western militaries, this article not only expands the conceptualisation of the role of private technology corporations in warfare[13] but also contributes to the Critical Security Studies literature that focuses on the role of visuals in the normalisation and legitimation of martial violence.[14]

Second, our empirical analysis provides original insights into the visions, discourses, and practices of two prominent US-based technology companies, Palantir and Anduril. Both companies are archetypical cases of non-traditional defence firms that have developed and demonstrated military decision-support software. They are quickly becoming central actors within the international defence ecosystem,[15] by claiming that their AI-based software programs enable and facilitate 'better', 'faster', and 'more accurate' methods of war, necessary to 'safeguard' Western democracies in the coming years.[16] Both cases therefore accurately illustrate how private tech companies are assuming an increasingly important role in the way knowledge about algorithmic warfare is produced and perceived.

The paper proceeds as follows. The first section links the rise of the military-industrial-commercial complex and the technological evolution towards the incorporation of AI and ML on modern battlefields with Der Derian's notion of 'virtuous war' and Roberto Gonzalez's concept of 'virtual war', to understand the increasing military role of technology companies. We then develop a conceptualisation of virtual military demonstrations and explain how this international practice can shape perceptions of (algorithmic) warfare by allowing companies to claim epistemic authority and fix knowledge production regimes. In the third section, we clarify our methodological choices, after which we empirically illustrate our main arguments through an assessment of how Palantir and Anduril virtually advertise their AI- and ML-based military decision-support systems TITAN and Lattice. We conclude by reflecting on how future research on the role of technology companies in war can be conducted.

Digital technologies, virtual/virtuous war, and the role of tech companies

As the information age advances, our societies are increasingly organised around digital data and systems to analyse them.[17] Militaries partake in this societal evolution. Ongoing armed conflicts highlight militaries' drive to integrate AI and ML technologies in a variety of applications.[18] Among them are AI- and ML-based decision-support systems that military personnel employ in decision-making, including for decisions related to targeting.[19] The technological evolution that materialises

[13]See Ingvild Bode and Hendrik Huelss, 'Constructing expertise: The front- and back-door regulation of AI's military applications in the European Union', *Journal of European Public Policy*, 30:7 (2023), pp. 1230–54; Marijn Hoijtink and Jasper van der Kist, 'Platforms on the frontline: The rise of the platform model in defense tech', *Opinio Juris* (11 February 2025), available at: {https://opiniojuris.org/2025/02/11/platforms-on-the-frontline-the-rise-of-the-platform-model-in-defense-tech/}; Anna Nadibaidze, 'Startups envisioning algorithmic warfare: The discourses of US tech companies in defense AI', *Global Policy: Next Generation,* 16:3 (2025), pp. 487–493.

[14]David Campbell, 'Geopolitics and visuality: Sighting the Darfur conflict', *Political Geography*, 26:4 (2007), pp. 357–82; Rhys Crilley, Ilan Manor, and Corneliu Bjola, 'Visual narratives of global politics in the digital age: An introduction', *Cambridge Review of International Affairs*, 33:5 (2020), pp. 628–37; Sorana Jude, 'Geopolitical imaginations of war preparations: Visual representations of the Romanian armed forces' military exercises', *Critical Military Studies*, 9:3 (2022), pp. 1–21.

[15]Schwarz, 'Unicorns for uniforms'.

[16]Anduril Industries, 'Lattice for Mission Autonomy'; Palantir, 'TITAN | Powered by Palantir'.

[17]Gonzalez, *War Virtually*.

[18]Bergengruen, 'How tech giants turned Ukraine into an AI war lab'.

[19]Anna Nadibaidze, Ingvild Bode, and Qiaochu Zhang, *AI in Military Decision Support Systems: A Review of Developments and Debates* (Odense: Center for War Studies, 2024); Marta Bo and Jessica Dorsey, 'Symposium on military AI and the law of armed conflict: The "need" for speed – the cost of unregulated AI decision-support systems to civilians', *Opinio Juris* (4 April 2024), available at: {https://opiniojuris.org/2024/04/04/symposium-on-military-ai-and-the-law-of-armed-conflict-the-need-for-speed-the-cost-of-unregulated-ai-decision-support-systems-to-civilians/}.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

on the battlefields of Ukraine and Gaza today borders on what Gonzalez has described as the 'technological fantasy' of *virtual war*:

> war conducted by robotic systems, some of which are being programmed for ethical decision-making; the emergence of Silicon Valley as a major center for defense and intelligence work; algorithmically driven propaganda campaigns and psychological operations (psyops) developed and deployed through social media platforms; next-generation social science models aimed at discovering what drives human cooperation and social instability; and predictive modelling and simulation programs, including some ostensibly designed to foresee future conflict.[20]

The vision of virtual war is not new. It is rooted in the assemblage of subjects, resources, technologies, and practices enabling the instantaneous collection, processing, and analysis of large amounts of digital data across geographical and temporal spaces and infrastructures for military purposes. It enables armies and audiences to physically disconnect from the fields of battle.[21] But most of all, virtual war signifies a long-standing techno-military fetish: waging war with little to no human intervention in order to eliminate human suffering and death (of soldiers, *not* civilians). Two and a half decades ago, Der Derian already suggested that this virtual conception of war constitutes the claim of a 'virtuous' war, at the basis of which lies a 'technical capability' to use 'networked information and virtual technologies to bring "there" here in near-real time and with near-verisimilitude' in order to conduct a 'bloodless, humanitarian, hygienic' war from a distance, thus rendering it a 'strategic advantage' and an 'ethical imperative'.[22]

Over the past three decades, the US government and its 'traditional' military-industrial complex have led the way in the global shift to remote warfare, enabled by advances in digital technologies.[23] Today, the 'virtualization of violence'[24] increasingly relies on commercial actors providing the technological tools – algorithms, ML models, training facilities, data centres – needed to maintain and improve the flow and analyses of data. As a consequence, Silicon Valley is rapidly turning into a third leg of the US military-industrial complex.[25] As Gould et al. have illustrated, it is now more accurate to speak of a *military-industrial-commercial* complex, where 'militaries, the "traditional" defense industry and the commercial technology sector engage in new partnerships', following the private sector's lead in terms of AI and ML innovation.[26]

This evolution has spurred what Hoijtink and Planqué-van Hardeveld have coined the 'platformisation' of the military.[27] Big Tech companies such as Google are providing Western militaries with platforms acting as digital infrastructures 'for doing, facilitating, and experimenting with ML

[20] Gonzalez, *War Virtually*, p. 20; Suchman, 'Imaginaries of omniscience', p. 762.

[21] Michael Ignatieff, *Virtual War* (London: Chatto & Windus, 2000).

[22] Der Derian, 'Virtuous war/virtual theory', p. 772.

[23] Derek Gregory, 'From a view to a kill: Drones and late modern war', *Theory, Culture & Society*, 28:7–8 (2011), pp. 188–215; Neil C. Renic, *Asymmetric Killing: Risk Avoidance, Just War, and the Warrior Ethos* (Oxford: Oxford University Press, 2020).

[24] Der Derian, 'Virtuous war/virtual theory', p. 772.

[25] Gonzalez, *War Virtually*; Gonzalez, *How Big Tech and Silicon Valley Are Transforming the Military-Industrial Complex*; Raj M. Shah and Christopher Kirchhoff, *Unit X: How the Pentagon and Silicon Valley Are Transforming the Future of War* (New York: Scribner, 2024).

[26] Gould, Hoijtink, and Arentze, 'Assembling the future of warfare', p. 234. See also Shana Marshall, 'The Military Industrial Venture Capital Complex', *Security in Context* (7 December 2023), available at: {https://www.securityincontext.com/posts/the-military-industrial-venture-capital-complex}; Shana Marshall, 'How VC is busting the military industrial complex – for its own benefit', *Responsible Statecraft* (15 January 2024), available at: {https://responsiblestatecraft.org/venture-capital-military-industrial-complex/}; Maaike Verbruggen, 'The role of civilian innovation in the development of lethal autonomous weapon systems', *Global Policy*, 10:3 (2019), pp. 338–342 (pp. 338–9); Raluca Csernatoni and Bruno Oliveira Martins, 'Disruptive technologies for security and defence: Temporality, performativity and imagination', *Geopolitics*, 29:3 (2024), pp. 849–72.

[27] Hoijtink and Planqué-van Hardeveld, 'Machine learning and the platformization of the military', p. 4; see also Hoijtink and Van Der Kist, 'Platforms on the frontline'.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

for [military] decision-making'.[28] This platformisation of the military is also driven by smaller-scale technology firms, often founded by 'visionary' technologists who are guided through the unpredictable and tricky business and defence landscape by politically well-connected venture capitalists.[29] Companies such as Palantir, Anduril, and Shield AI are building comprehensive software programs – in addition to military hardware like autonomous or uncrewed armed vehicles – for the purposes of collecting, processing, and analysing large amounts of data via a network of sensors and systems. Advertised and sold as AI-driven decision-support systems that reportedly increase the efficiency, speed, and accuracy of military operations, these software programs seemingly materialise the long-standing dream of virtual warfare.[30]

States and militaries seek to integrate such systems into targeting decision-making, which is normally a complex process involving several actors and steps. AI- and ML-based systems can be used for various purposes as part of this process, including for processing large volumes of data, detecting individuals or objects of interest, getting real-time information on adversary positions, or suggesting potential courses of action.[31] Ukrainian and Israeli armed forces are known to rely on different types of decision-support systems, while the US Department of Defense (DoD) pursues its development of the Project Maven programme.[32] So far, decision-support systems have not featured as prominently in the debate on military applications of AI, which has mainly focused on (lethal) autonomous weapon systems (LAWS).

However, the integration of AI technologies and software programs into military decision-making and operation planning 'may be much more influential' than LAWS.[33] As military and commercial interests in decision-support systems become increasingly entangled, developments in this area require more scholarly attention. This article paves the way for future analyses of such systems, as well as the interests and normative roles of the privately owned companies that develop them. Our starting point is the introduction of these systems in the public domain via audiovisual demonstrations in and through digitally enhanced 'virtual' environments – or, as we call them, virtual military demonstrations.

Virtual military demonstrations and claims of epistemic authority

States, militaries, and weapon manufacturers have a long-standing tradition of demonstrating and advertising novel military capabilities and weapons systems through exercises, weapons tests, experiments, exhibitions, or employment.[34] Existing studies indicate that actors showcase military capabilities to deter or coerce others by signalling resolve or intent,[35] to enhance

[28]Hoijtink and Planqué-van Hardeveld, 'Machine learning and the platformization of the military', p. 4.

[29]Schwarz, 'Unicorns for uniforms'; Shah and Kirchhoff, *Unit X*.

[30]Zoë Corbyn, 'Move fast, kill things: The tech startups trying to reinvent defence with Silicon Valley values', *The Guardian* (29 March 2025), available at: {https://www.theguardian.com/world/2025/mar/29/move-fast-kill-things-the-tech-startups-trying-to-reinvent-defence-with-silicon-valley-values}; Gault, 'Palantir demos AI to fight wars'; Morgan Meaker, 'A battlefield AI company says it's one of the good guys', *Wired* (20 July 2023), available at: {https://www.wired.com/story/helsing-ai-military-defense-tech/}.

[31]Arthur Holland Michel, *Decisions, Decisions, Decisions: Computation and Artificial Intelligence in Military Decision-Making* (Geneva: International Committee of the Red Cross, 2024); ICRC & Geneva Academy, *Expert Consultation Report on AI and Related Technologies in Military Decision-Making on the Use of Force in Armed Conflicts* (Geneva: International Committee of the Red Cross, 2024).

[32]Nadibaidze, Bode, and Zhang, *AI in Military Decision Support Systems*.

[33]Merel Ekelhof, 'AI is changing the battlefield, but perhaps not how you yhink: An analysis of the operationalization of targeting law and the increasing use of AI in military operations', in Robin Geiss and Henning Lahmann (eds), *Research Handbook on Warfare and Artificial Intelligence* (London: Edward Elgar, 2024), pp. 161–78 (p. 162).

[34]Evan Braden Montgomery, 'Signals of strength: Capability demonstrations and perceptions of military power', *Journal of Strategic Studies*, 43:2 (2020), pp. 309–30 (pp. 316–20).

[35]Kyle Haynes, 'Signaling resolve or capability? The difference matters on the Korean peninsula', *War on the Rocks* (10 May 2017), available at: {https://warontherocks.com/2017/05/signaling-resolve-or-capability-the-difference-matters-on-the-korean-peninsula/}.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

cooperation between allies and multilateral networks,[36] to convince potential buyers,[37] or to elevate status.[38]

But military demonstrations have more than just a rational and linear strategic or commercial impact. As public spectacles recurrently performed and communicated through audiovisual means, showcasings of military capabilities are international practices that visually impress spectators and so construct what is considered to be reality.[39] They filter what is (un)seen and therefore enable or restrain what is 'said, thought and done'.[40] In other words, observers are compelled, through the visual patterns, extrapolated visual themes, and contextual practices of visuality evoking affective connections, to consider what they see in visual demonstrations of weapons systems as logical, truthful, and commonsensical representations of military force.[41] As such, actors engaging in demonstrations visually claim epistemic authority in the domain of warfare. They present themselves as knowledgeable and trustworthy experts by visually showing technical (how weapons systems are prepared, operated, and controlled in a practical manner) and military (how weapons systems are used to attain specific strategic, tactical, or operational goals) expertise over the weapons systems on display.[42]

The evolution of warfare based on 'networked information and virtual technologies'[43] – in the US well underway since the Cold War, as Edwards shows in *The Closed World*[44] – has spurred the emergence of computerised military command and control software programs. These new military capabilities, of which AI- and ML-based decision-support systems are now 'advanced as the promissory solution to automating data analysis and reclosing the world',[45] are inherently *in*visible and abstract. They are *virtual*. Engaging in demonstrations to profess the possibilities and workings of such products thus becomes more difficult. Virtual military capabilities can only be visualised and concretised by virtual means, that is, through digitally built virtual environments in which the practical functioning of AI- and ML-based decision-support systems

[36]Erik Hedlund, Marcus Börjesson, and Johan Österberg, 'Team learning in a multinational military staff exercise', *Small Group Research*, 46:2 (2015), pp. 179–203.

[37]Winnona Desombre, Lars Gjesvik, and Johann Ole Willers, *Surveillance Technology at the Fair: Proliferation of Cyber Capabilities in International Arms Markets* (Washington, DC: Atlantic Council, 2021).

[38]Maria Mälksoo, 'Deterrence icons as status symbols: American forces in NATO's eastern flank', *Cooperation and Conflict*, 60:1 (2024), pp. 75–96; Anna Nadibaidze, 'Technology in the quest for status: The Russian leadership's artificial intelligence narrative', *Journal of International Relations and Development*, 27:2 (2024), pp. 117–42.

[39]Robin Vanderborght, 'Normalising algorithmic warfare through visual practice', *Critical Studies on Security*, 12:2 (2024), pp. 147–66. See also Linda Ruppert, 'Affective atmospheres of weapons technologies: The case of battle drones, combat fighters and bodies in contemporary German geopolitics', *Emotion, Space and Society*, 45 (2022), pp. 1–7; Claude Rosental, *The Demonstration Society* (Cambridge, MA: The MIT Press, 2021); David Shim, *Visual Politics and North Korea* (London: Routledge, 2013).

[40]William A. Callahan, *Sensible Politics: Visualizing International Relations* (Oxford: Oxford University Press, 2020), p. 9.

[41]We do not suggest that *all* observers necessarily follow this framing. What we wish to stress, however, is that the visual compositions and contextual practices facilitate viewers' perceptions of truthfulness and reality. In this context, see Vanderborght, 'Normalising algorithmic warfare through visual practice', pp. 151–3.

[42]We adopt a broad understanding of epistemic authority, which is not only established through formalised recognition procedures in institutionalised settings but also socially constructed in and through informal sites and processes. See Bode and Huelss, 'Constructing expertise', p. 1235. On the conceptualisation of epistemic authority regarding weapons systems, see Bode and Huelss, 'Constructing expertise'; Graham Spinardi, 'Technical controversy and ballistic missile defence: Disputing epistemic authority in the development of hit-to-kill technology', *Science as Culture*, 23:1 (2014), pp. 1–26. On military demonstrations through online media, see Susan T. Jackson, 'Marketing militarism in the digital age: Arms production, YouTube and selling "national security"', in Caitlin Hamilton and Laura J. Shepherd (eds), *Understanding Popular Culture and World Politics in the Digital Age* (London: Routledge, 2016), pp. 68–82.

[43]Der Derian, 'Virtuous war/virtual theory', p. 772.

[44]Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: The MIT Press, 1997).

[45]Suchman, 'Imaginaries of omniscience', p. 762.

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can be shown. Concretely, this means that real-life video images are interspersed with computer animations and digital renders, as we see in the virtual demonstrations of TITAN and Lattice.[46]

This virtual method of demonstration bolsters the epistemic authority claims that the developers of these products – predominantly commercial actors, as we showed in the previous section – make. Through 'high tech' visualisation techniques, digital enhancement, and discursive contextualisation, demonstrating actors construct a virtual environment that reflects their vision of the future of war. It is a vision

> of utopian war, identifying a future in which advanced technology makes the processes of military decision-making akin to bouncing a few requests for intelligence or courses of action off an AI-enabled chat system. It envisions complete knowledge of the enemy, the capacity for friendly forces to act unburdened by opposition, and the ability to rapidly generate a list of reliable plans of attack in only seconds.[47]

By centrally placing their own AI- and ML-based decision-support systems in this virtual representation of future war, and by visually demonstrating their products in a technically impressive and military useful manner, these companies claim definitive knowledge about winning future conflicts: in the next war, quick and precise military decision-making driven by machine intelligence will be the only way to defeat one's geopolitical rivals – or so they suggest.[48] Algorithmic warfare thus becomes transformed into a strategic imperative for survival.

Moreover, virtual military demonstrations of AI-based decision-support systems and their discursive contextualisation allow commercial actors to produce knowledge that is framed as technical expertise but in reality is misrepresenting the complexities of warfare while pursuing commercial and political objectives. The construction of a virtual environment in which AI- and ML-based programs steer the hostilities of a distant war fought by 'massive amounts of attritable systems' instead of human soldiers[49] reflects Der Derian's notion of 'virtuous war'. By promoting visions of sanitised, precise, and 'bloodless' violence, the virtually constructed promise of virtuous war 'cleans up the political discourse as well as the battlefield'.[50] The technology companies that construct AI and ML technologies and demonstrate them in a digitally enhanced, virtual environment, aim to fulfil the 'resilient fantasy'[51] of algorithmically steered command and control, with little human intervention.[52] Warfighting as a clean and efficient practice, objectified by the datafication and mechanisation that AI and ML technologies promise, is thus also framed as an ethical necessity to protect Western democracies.[53]

Technology companies have long constructed broader discourses on military AI development as the strategically and morally right thing to do, which are further reinforced by these virtual demonstrations. As Palantir's CEO Alex Karp and his colleague Nicholas Zamiska suggest in *The Technological Republic*, 'this new era of advanced AI … provides our geopolitical opponents with the most compelling opportunity since the last world war to challenge our global standing', adding that the pursuit of innovation, experimentation, and collaboration between industry and the military would 'safeguard the legitimacy of the democratic project itself'.[54] Similarly, Anduril's founder

[46] Anduril Industries, 'Lattice for Mission Autonomy'; Palantir, 'TITAN | Powered by Palantir'.

[47] Ian J. Reynolds and Ozan Ahmet Cetin, 'War is messy. AI can't handle it', *Bulletin of the Atomic Scientists* (14 August 2023), available at: {https://thebulletin.org/2023/08/war-is-messy-ai-cant-handle-it/}; see also Neil C. Renic, 'Tragic reflection, political wisdom, and the future of algorithmic war', *Australian Journal of International Affairs*, 78:2 (2024), pp. 247–56 (p. 252).

[48] Renic, 'Tragic reflection', pp. 250–2.

[49] Anduril Industries, 'Lattice for Mission Autonomy'.

[50] Der Derian, 'Virtuous war/virtual theory', p. 772.

[51] Suchman, 'Imaginaries of omniscience', p. 762.

[52] Gonzalez, *War Virtually*, p. 20; Der Derian, 'Virtuous war/virtual theory', p. 773.

[53] John R. Emery, 'Probabilities towards death: Bugsplat, algorithmic assassinations, and ethical due care', *Critical Military Studies*, 8:2 (2022), pp. 179–97.

[54] Karp and Zamiska, *The Technological Republic*, p. 17.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

Palmer Luckey argued in a TED talk that 'there is no moral high ground' in refusing to develop and use AI, as it would be irresponsible 'to write off an entire category of technology, and in doing so, tie our hands behind our backs and hope we can still win'.[55] In another interview, Luckey explained that Anduril is 'not just a neutral company', but that it would 'take sides … and fight for the things that our country values, that our allies around the world have in common'.[56]

In the following section, we conduct a detailed analysis of the virtual demonstrations of Palantir's TITAN and Anduril's Lattice, showing how these companies claim epistemic authority to frame algorithmically mediated violence as a strategic and moral imperative for Western democracies' survival.

Virtual demonstrations in practice: Palantir's TITAN and Anduril's Lattice

Methodological reflections: Knowledge production about AI through the virtual

Following STS scholarship, we treat technologies as inherently political and social, which involves exercising reflexivity about the role of various actors in producing knowledge about technological developments, even our own. This is especially crucial in the sphere of AI, as current debates are often based on wrong or incomplete assumptions, but still generate a high level of political, societal, and media interest.[57] Uncertainties are exacerbated by the low degree of observability of AI and ML technologies, ongoing definitional discussions, and, in a military context, secrecy surrounding AI-related projects as a result of the strategic importance attributed to them. Given that secrecy is a baseline condition for studies on security and military technology, especially in a developing field like military applications of AI, publicly available demonstrations, whether from defence ministries or tech companies, serve as a vital source of knowledge production.[58]

Therefore, reflecting on our roles as researchers analysing virtual military demonstrations, we recognise the challenges in verifying the information presented by demonstrating actors. Actors have the possibility to stretch the meaning of the term 'AI' and present exaggerated statements and claims about their products or capabilities. As Suchman argues, 'while technologists understand "AI" as a convenient (and highly saleable) shorthand for a suite of statistically based techniques and technologies for automating data analysis, the term falsely implies something singular and unprecedented'.[59] We therefore highlight the importance of studying virtual military demonstrations from a critical and reflexive perspective. This is also because presenting the information communicated via virtual demonstrations as 'truths' without critical reflections risks reinforcing certain types of expertise in the debate on military AI. As noted by STS scholars, what often appears as technical knowledge can be shaped by ideological discourses and political or commercial interests of certain actors, such as tech companies.[60] Meanwhile, it is common for policymakers to rely on companies' participation in various initiatives or debates to gain an understanding of the topic, considering the complexity of AI development. For instance, Bode and Huelss find that the European Union 'grants expertise on military AI selectively to a small group of tech company representatives who then shape regulation formally … and informally'.[61]

[55]TED Talks, 'The AI arsenal that could stop World War III | Palmer Luckey', *YouTube* (25 April 2025), available at: {https://www.youtube.com/watch?v=ooMXEwl7N8Y}.

[56]Pepperdine University, 'Palmer Luckey, founder of Anduril defense industry disruptor – President Speaker Series (2024)', *YouTube* (4 October 2024), available at: {https://www.youtube.com/watch?v=az81MHug0Nw}.

[57]Arthur Holland Michel, *Recalibrating Assumptions on AI* (London: Chatham House, 2023).

[58]Tobias Liebetrau in Fabio Cristiano, Xymena Kurowska, Tim Stevens, et al., 'Cybersecurity and the politics of knowledge production: Towards a reflexive practice', *Journal of Cyber Policy*, 8:3 (2023), pp. 331–64 (pp. 351–4).

[59]Lucy Suchman, 'Six unexamined premises regarding artificial intelligence and national security', *AI Now Institute* (31 March 2021), available at: {https://ainowinstitute.org/publications/six-unexamined-premises-regarding-artificial-intelligence-and-national-security}.

[60]Myriam Dunn Cavelty in Cristiano et al., 'Cybersecurity and the politics of knowledge production', p. 345.

[61]Bode and Huelss, 'Constructing expertise', p. 1231.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

This does not imply that corporate actors necessarily have a direct influence on policies or debates in the sphere of AI, but rather that they 'construct and perform particular discourses and practices of military AI' and warfare – including via virtual demonstrations.[62] These discourses and practices contribute to reinforcing certain perceptions of what is considered 'appropriate' or 'normal' in warfare.[63] However, they are often treated as part of 'objective' technical expertise. Researchers using virtual demonstrations without critically reflecting upon the types of discourses and practices in these performances risk amplifying this type of 'expert' authority in the debate on AI. Thus, while arguing for the need to examine companies' virtual demonstrations, we also encourage other researchers studying this phenomenon to consider *how* AI technologies are advertised, especially regarding the performative aspect of demonstrations and the types of security perceptions that these performances can reinforce or contribute to.

Data collection and analysis

Our analysis is based on audiovisual documents available via open-access sources. We collected videos featuring demonstrations of TITAN and Lattice via Palantir's and Anduril's official websites and social media channels.[64] We conducted a thematic visual analysis following an interpretive research design, where we focused on 'meanings and meaning-making practices of actors in a given setting' rather than arriving at generalised statements based on two companies' demonstrations.[65] For each video we assessed the following guiding questions: what is being demonstrated, and how? Who appears in the video? How are humans (if there are any) portrayed? How are software and hardware elements portrayed? How is the environment visualised? How is war visualised? Does the video mention adversaries, and if yes, who and how?

By responding to these questions, we observed the objects, actors, and practices depicted in the virtual environment created in the demonstrations.[66] This approach is appropriate for our analysis because we do not focus on the quantitative aspect (e.g. how many times something appears in the videos). Rather, we are interested in broad themes revealed by our observations. We therefore created a 'recursive and iterative back-and-forth' between our theoretical assumptions and the empirical analysis.[67] To complement our visual thematic analysis, we collected videos of other systems promoted by Palantir and Anduril.[68] Our analysis of these videos followed the same process, as we aimed to uncover common themes between demonstrations of various products.

Moreover, to provide context for the videos, we collected official media reports, opinion pieces, and interviews written or given by these companies' representatives. Alex Karp and Palmer Luckey, the respective founders of Palantir and Anduril, actively participate in public debates on military uses of AI. Representatives of both companies often attend exhibitions and forums, setting up booths to visually demonstrate and sell their products. We therefore also refer to reports from such events to analyse Palantir's and Anduril's demonstrations within these settings. While we treat virtual demonstrations as primary sources of our analysis, these other documents provide complementary discourses which are helpful to make sense of the perceptions shaped via virtual military demonstrations.

[62]Ibid., p. 1231.

[63]Ingvild Bode, 'Practice-based and public-deliberative normativity: Retaining human control over the use of force', *European Journal of International Relations*, 29:4 (2023), pp. 990–1016.

[64]Palantir, 'TITAN | Powered by Palantir'; Anduril Industries, 'Lattice for Mission Autonomy'.

[65]Xymena Kurowska, 'Interpretive scholarship in contemporary International Relations', *Teoria Polityki*, 4 (2020), pp. 93–107 (p. 95).

[66]Jonathan Luke Austin and Isabel Bramsen, 'Visual (data) observation in International Relations: Attentiveness, close description, and the politics of seeing differently', *Review of International Studies*, 50:6 (2023), pp. 965–86.

[67]Kurowska, 'Interpretive scholarship in contemporary International Relations', p. 95.

[68]The complete list of documents used for our analysis is available as supplementary material.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

Palantir's *TITAN*

Palantir Technologies is a US-based public company specialising in software platforms and supplying its products to various institutions and companies across areas such as health, financial services, and commerce. Named after the future-seeing stones featured in *The Lord of the Rings* mythology, the company also provides surveillance and intelligence technologies to various agencies of the US government and police departments.[69] In the sphere of defence, Palantir has held contracts with the US and UK armed forces for many years, and since Russia's full-scale invasion of Ukraine in February 2022, the company has been particularly active in supplying AI-based software tools to the Ukrainian armed forces.[70] In 2024, the firm's co-founders Peter Thiel and Alex Karp signed a strategic partnership with Israel's Defence Ministry, without revealing the exact technologies that are part of the agreement.[71]

In 2022, the US Army awarded Palantir and RTX Corporation $36 million each to build prototypes of their respective plans for the *TITAN* intelligence ground system.[72] Subsequently, Palantir was selected as the provider for the system, with a team involving several partners: Anduril Industries, Northrup Grumman, L3Harris, Pacific Defense, Sierra Nevada Corporation, Strategic Technology Consulting, and World Wide Technology. In July 2024, the first prototype was delivered to the US Army's Joint Base Lewis–McChord. As the army's website states, the main driver of this project is 'the need for a next generation intelligence, surveillance and reconnaissance system that rapidly processes sensor data … to provide real-time intelligence support for targeting and situational awareness', as well as to enhance the capability 'to support multi-domain operations'.[73]

In Palantir's main video advertising TITAN, the platform appears as a black/grey ground vehicle resembling a truck, visualised in front of an abstract black background.[74] Much of the video is dedicated to a technical expert, Palantir Forward Deployed Engineer Claire Reimer, explaining and describing TITAN's features, accompanied by digital animations. For instance, the claim that the system 'delivers AI at the edge that can be tailored to the mission ensuring soldiers have the latest and most relevant models *wherever the mission takes them even as the threat landscape evolves*'[75] is illustrated with animations and shots of various terrains: desert, arboreal, tundra, and urban. These are all empty, without any humans or buildings except for the urban environment, which features destroyed buildings and roads. Similarly, when Reimer says that TITAN 'has access to and can manage data from space, high altitude, aerial and terrestrial sensors',[76] the audience can see shots of a desert-like environment, with only nature and no humans present. Through the omissions of both combatants and civilians, warfare is portrayed as something that can be controlled and classified into numerical categories, and analysed via the algorithms integrated into TITAN.

Viewers also see the TITAN vehicle in front of a black background, surrounded with white interconnected dots, as Reimer says that what sets TITAN apart is 'the decisive advantage that the

[69] Andrew Iliadis and Amelia Acker, 'The seer and the seen: Surveying Palantir's surveillance platform', *The Information Society*, 38:5 (2022), pp. 334–63.

[70] Bruno Maçães, 'How Palantir is shaping the future of warfare', *TIME* (10 July 2023), available at: {https://time.com/6293398/palantir-future-of-warfare-ukraine/}; Maureen Dowd, 'Alex Karp has money and power. So what does he want?', *New York Times* (17 August 2024), available at: {https://www.nytimes.com/2024/08/17/style/alex-karp-palantir.html}.

[71] Marissa Newman, 'Thiel's Palantir, Israel agree strategic partnership for battle tech', *Bloomberg* (12 January 2024), available at: {https://www.bloomberg.com/news/articles/2024-01-12/palantir-israel-agree-to-strategic-partnership-for-battle-tech}.

[72] Courtney Albon, 'US Army Awards awards $72 million for new phase in next-gen ground system effort', *Defense News* (28 June 2022), available at: {https://www.defensenews.com/industry/2022/06/28/us-army-awards-72-million-for-new-phase-in-next-gen-ground-system-effort/}.

[73] Larry Glidewell, 'Army's first TITAN ground station prototype delivered at JBLM', *US Army* (30 July 2024), available at: {https://www.army.mil/article/278482/armys-first-titan-ground-station-prototype-delivered-at-jblm}.

[74] Palantir, 'TITAN | Powered by Palantir'.

[75] Ibid., emphasis added.

[76] Ibid.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

software-enabled capabilities will give to soldiers', such as 'faster, deeper sensing' and 'more accurate targeting enabled by cutting-edge AI and machine learning'.[77] Presumably, the white network of dots surrounding TITAN is a visual representation of the AI and ML capabilities. This visual strategy obscures the experience of warfare as an inherently chaotic, complex, fast-changing, and deeply harmful human practice. War is deliberately represented as a clean, controllable, and precise business, in which humans and their experiences are moved to the background.

Around halfway, the video changes to a software demonstration of how the backend of the system would function 'in action'. This demo shows what happens on the user's end, especially the interface which allows configuration, as well as target identification, tracking, and selection. It displays screens with running data, maps, and satellite imagery. Viewers can see tabs such as 'overview', 'data connections', 'power management', 'hardware management', and 'software management' and the cursor switching between them, scrolling through different pages, and opening various other tabs. Reimer's voice, in the meantime, contextualises the images, noting that 'the system uses AI to reduce the sensor to shooter timeline by automatically refining tracks and target locations' and that the data fused from multiple sources 'creates more complete, higher confidence targets for users to review'.[78]

Overall, the physical, material appearance of the TITAN vehicle does not feature as much as the software part. This corresponds to how the system is described by Palantir's representatives in other contexts. Chief Technology Officer Shyam Sankar said that the capabilities of this vehicle were 'derived and designed around the software', emphasising the AI and software side, not the hardware.[79] In another interview, he noted that while some may think of TITAN as a 'ground station on wheels, we [Palantir] think of it as the first AI-defined vehicle', adding, 'If TESLA made your car software design, we're making your weapon system AI-defined'.[80] Palantir's booth at the 2023 Consumer Electronics Show, where visitors could find a dark-grey demo version of TITAN, prominently featured the slogan: 'the future of hardware is software'.[81]

These demonstrations also reflect the broader discourse promoted by Palantir: that current armed conflicts show the superiority of data and software over hardware. In an op-ed for the *Washington Post*, Karp and Zamiska wrote: 'Now software is at the helm, with hardware – the drones in Ukraine and elsewhere – increasingly serving as the means by which the recommendations of AI are carried out'.[82] Karp also often connects the importance of developing software to broader political statements, especially in relation to what he perceives to be the main foreign policy objectives of the US and its allies. Writing for the *New York Times* in 2023, he argued that 'the ability of free and democratic societies to prevail requires something more than moral appeal. It requires hard power, and hard power in this century will be built on software.'[83] Meanwhile, Sankar mentioned that 'software is the most important weapon system', a slogan that also appears on Palantir's website page advertising its Gotham platform.[84]

[77] Ibid.

[78] Ibid.

[79] CNBC, 'Palantir CTO talks new contract with the U.S. Army to build AI enabled vehicle', *YouTube* (6 March 2024), available at: {https://www.youtube.com/watch?v=7gHyK8yLEA4}.

[80] Palantir Daily, '$PLTR Palantir CTO Shyam Sankar on the TITAN contract: "We think of it as the first AI-defined vehicle"', *X* (15 March 2024), available at: {https://x.com/DailyPalantir/status/1768738942848032970}.

[81] Palantir, 'The future of hardware is software. From Titan to Skykit, #CES2023 played host to some of our latest offerings. Thank you to our partners and all those who joined us for an incredible four days', *X* (10 January 2023), available at: {https://x.com/PalantirTech/status/1612900148689903624}.

[82] Alexander C. Karp and Nicholas W. Zamiska, 'New weapons will eclipse atomic bombs. Their builders ask themselves this question', *Washington Post* (25 June 2024), available at: {https://www.washingtonpost.com/opinions/2024/06/25/ai-weapon-us-tech-companies/}; Palantir, 'Gotham' (n.d.), available at: {https://www.palantir.com/platforms/gotham/}.

[83] Alexander C. Karp, 'Our Oppenheimer moment: The creation of A.I. weapons', *New York Times* (25 July 2023), available at: {https://www.nytimes.com/2023/07/25/opinion/karp-palantir-artificial-intelligence.html}.

[84] CNBC, 'Palantir CTO talks new contract with the U.S. Army to build AI enabled vehicle'.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

Palantir has also been advertising its other decision-support systems, such as Gotham, Gaia, and Artificial Intelligence Platform (AIP).[85] Similarly to the virtual demonstration of TITAN, the videos promoting these systems typically include a simulation of the software, screens with running data, maps, satellite imagery, and interfaces resembling generative AI software or chatbots, such as OpenAI's ChatGPT. In addition to this emphasis on software, there is a clear focus on the perspective of the user(s) of these systems, i.e. the humans who would employ them as part of military operations. Everything is advertised as making the various steps of targeting decision-making, especially intelligence analysis, more efficient, comprehensive, and well-organised, and thereby reducing security threats.

One video demonstrating Gotham, for instance, features a fictional scenario of potential tensions in the South China Sea, where the US and its allies use Palantir software to 'see the full picture and make tactical, operational, and strategic decisions'.[86] In the scenario, a military incident or escalation between China and the US is avoided, with Palantir's representative claiming that the technology helps 'to make decisions at speed, and in the process, make the world a safer place'.[87] Meanwhile, the Gotham: Europa demonstration begins with short videos associated with various threats (e.g. a fire, destroyed buildings, crime, police troops, and lights on police cars) and claims that the software is 'built to deal with the chaotic nature of the modern threat landscape'.[88] Such examples support and reinforce narratives of tech solutionism that portray AI as a 'fix' to solve broader societal issues, whether in the sphere of war or law enforcement.[89] These visual narratives even promote the idea that AI and ML adoption by the military is necessary to safeguard Western democracies. This is, for instance, clearly illustrated in a short video of TITAN released in April 2025, which mimics the trailer of a film by featuring dramatic music, images of military hardware without any human presence, and titles such as 'TITAN enables the warfighter to defend the West'.[90]

Further, Palantir's AI-based decision-support systems are portrayed as isolated from contexts of actual battlefields – a common theme in visual representations of AI in the military domain.[91] The realities of warfare, which is a complex and messy phenomenon, are obscured with digitally enhanced imagery which is not necessarily unrealistic (i.e. it does not recall science fiction), but which is abstract. The difficulties of military decision-making on the ground are overshadowed by visuals of order, organisation, efficiency, and 'accuracy'.[92] The demonstrations represent targets as numbers and symbols, a collection of data in the backend of a system where the user clicks on some icons in a simple and streamlined process. Potential errors or malfunctions, as well as humans and infrastructure, whether civilian or military, affected by the targeting process are not visually (or discursively) acknowledged. As aptly reported by journalist Caroline Haskins describing Palantir's booth at the 2024 AI Expo for National Competitiveness in the US:

> They also used countless euphemisms for bombing and death. The woman described how Palantir's Gaia map tool lets users 'nominate targets of interest' for 'the target nomination process'. She meant it helps people choose which places get bombed … So, Gaia uses a large language model (something like ChatGPT) to sift through this information and simplify it.

[85] Palantir, 'Palantir Gotham for defense decision making', YouTube (8 June 2021), available at: {https://www.youtube.com/watch?v=rxKghrZU5w8}; Palantir, 'Palantir AIP | Defense and military', *YouTube* (25 April 2023), available at: {https://www.youtube.com/watch?v=XEM5qz__HOU}.

[86] Palantir, 'Palantir Gotham for defense decision making'.

[87] Ibid.

[88] Palantir, 'Palantir Gotham: Europa', *YouTube* (20 May 2022), available at: {https://www.youtube.com/watch?v=tZVx3BTkLlI}.

[89] Christian Katzenbach, '"AI will fix this" – the technical, discursive, and political turn to AI in governing communication', *Big Data & Society*, 8:2 (2021), pp. 1–8 (p. 2).

[90] Palantir, 'TITAN', YouTube (23 April 2025), available at: {https://www.youtube.com/watch?v=9BfEeotMO10}.

[91] Vanderborght, 'Normalising algorithmic warfare through visual practice'.

[92] Lucy Suchman, 'Algorithmic warfare and the reinvention of accuracy', *Critical Studies on Security*, 8:2 (2020), pp. 175–87.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

> Essentially, people choosing bomb targets get a dumbed-down version of information about where children sleep and families get medical treatment.[93]

In sum, the virtual demonstration of TITAN, as well as Palantir's other demonstrations and broader discourses, contribute to reinforcing the perception that AI- and ML-based decision-support systems would make war more clean, controllable, and precise, and thereby give a 'decisive advantage' to the US as part of asserting its dominance on the world stage.[94] By featuring technical experts such as engineers in the demonstrations, Palantir claims epistemic authority, knowledge and expertise over future wars and how to win them. Moreover, Palantir's virtual demonstrations of military decision-support systems reinforce the company's claim to moral authority and the contention that the pursuit of superiority and deterrence through military applications of AI is the ethically right thing to do because it is the key to stability and peace. As Karp claimed '*We* are the peace activists', referring to Palantir and other producers of military applications of AI.[95]

Anduril's Lattice

Our second illustration assesses Anduril's Lattice program. Palmer Luckey, who sold his virtual reality (VR) company Oculus to Facebook for $2 billion in 2014, founded the defence tech startup in 2017. After initially selling surveillance technology – a combination of VR and AI software programs and hardware gear – to Donald Trump's Department of Homeland Security with the objective of constructing a 'virtual border wall' on the southern US border,[96] Anduril shifted its focus to the US DoD to sell military products. The defence tech startup has since been chosen by the US Special Operations Command as its Systems Integration Partner, and was also selected to build the US Air Force and Navy autonomous fighter jet, the so-called Collaborative Combat Aircraft, or CCA.[97] It also supplies several uncrewed and autonomous systems to the US military and its allies.[98]

But Anduril's flagship product is its software. The digital border wall constructed by Luckey and his team was heralded as a breakthrough by border guards and the US government, because it not only provided hardware such as autonomous surveillance drones, VR headsets, and sentry towers with an intricate ecosystem of sensors, but also a software 'system of systems' that could gather, process, and analyse all of the available data.[99] This software program is called *Lattice*, which, according to Anduril, is 'an open software platform capable of being used for a variety of missions

[93]Caroline Haskins, '"I'm the new Oppenheimer!": My soul-destroying day at Palantir's first-ever AI warfare conference', *Guardian* (17 May 2024), available at: {https://www.theguardian.com/technology/article/2024/may/17/ai-weapons-palantir-war-technology}.

[94]Palantir, 'TITAN | Powered by Palantir'; Palantir, 'Palantir CEO Alex Karp discusses TITAN, AIPCon on Bloomberg TV', *YouTube* (8 March 2024), available at: {https://www.youtube.com/watch?v=MwYRbKPwO2A}; Glidewell, 'Army's first TITAN ground station prototype delivered at JBLM'.

[95]Haskins, '"I'm the new Oppenheimer!"'. See also Karp's statements in Dominique Mora, 'Alex Karp, PDG de Palantir: "Les Ukrainiens utilisent notre logiciel contre l'armée russe"', *Le Nouvel Obs* (13 March 2023), available at: {https://www.nouvelobs.com/economie/20230313.OBS70724/alex-karp-pdg-de-palantir-les-ukrainiens-utilisent-notre-logiciel-contre-l-armee-russe.html}.

[96]Steven Levy, 'Inside Palmer Luckey's bid to build a border wall', *Wired* (11 June 2018), available at: {https://www.wired.com/story/palmer-luckey-anduril-border-wall/}.

[97]Jen Judson, 'US Special Operations Command picks Anduril to lead counter-drone integration work in $1B deal', *Defense News* (24 January 2022), available at: {https://www.defensenews.com/unmanned/2022/01/24/us-special-operations-command-picks-anduril-to-lead-counter-drone-integration-work-in-1b-deal/}; Will Knight, 'Anduril is building out the Pentagon's dream of deadly drone swarms', *Wired* (28 May 2024), available at: {https://www.wired.com/story/anduril-is-building-out-the-pentagons-dream-of-deadly-drone-swarms/}.

[98]Demarest, 'Anduril unveils software to manage hordes of drones'; Megan Eckstein, 'Pentagon tech hub hires Anduril to get large underwater drone to Navy', *Defense News* (8 February 2024), available at: {https://www.defensenews.com/unmanned/2024/02/08/pentagon-tech-hub-hires-anduril-to-get-large-underwater-drone-to-navy/}.

[99]Sanja Milivojevic, 'Artificial intelligence, illegalised mobility and lucrative alchemy of border utopia', *Criminology & Criminal Justice*, 25:2 (2022), pp. 630–48 (p. 637).

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

and industries' in both the commercial and military domain, 'designed to be sensor, network, and system agnostic'. It 'takes data from disparate and distributed sensors, feeds, and systems and moves this data into a single integration layer', which is then processed through AI and ML techniques that 'filter high-value information to users'.[100]

Today, Lattice for Mission Autonomy is the operating system for Anduril's military products. It serves as an 'AI-enabled software integration and network layer across a variety of legacy systems in use by our customers [which] now automates hundreds of deployed robotic systems'.[101] On the Anduril website, Lattice is prized as a useful software product for 'securing land and maritime borders', 'inspecting and securing critical infrastructure', 'detecting and responding to wildfires', and 'search and rescue'.[102] Its most controversial application, however, is as a military decision-support system that is part of the US DoD Joint All-Domain Command and Control (JADC2).[103] Described as 'simple, scalable, [and] extensible', Lattice is said to be the crucial operating system to keep up with 'one of the most important modernization priorities for the DoD to confront challenges posed by strategic competition' and promises to leverage 'machine intelligence to accelerate the closing of complex kill chains'.[104] Anduril has produced several audiovisual, digital spectacles that showcase the professed capacities of Lattice, which, we argue, portray practices of algorithmic warfare as a strategic and moral imperative for Western democracies.

The main demonstration showcasing Lattice for Mission Autonomy is an eight-minute-long YouTube video, uploaded by the Anduril Industries channel and shared on social media and their own website.[105] By way of introduction, Christian Brose, Anduril's Chief Strategy Officer (CSO), warns the viewer that 'we' are 'losing our ability to deter great power conflict', because 'our adversaries' are building large numbers of advanced weaponry that can 'find, target, and destroy our traditional forces'. While he is talking, the video shows aerial shots of empty high seas, rocky landscapes, and cloudy skies. The stern-looking CSO asserts that the solution is simple: 'our goal must be affordable mass: the ability to produce, operate, and sustain massive amounts of lower-cost, more-intelligent, more attritable military systems'. He stresses that 'this is all about autonomy, and that will be delivered more than anything else by software'.[106] The camera then pans to a laptop, presumably running the Lattice software program, where the viewer sees a digitally augmented map of the UK, with red and blue pins in the form of warplanes and tanks, manoeuvring in south-west England. Brian Schimpf, the company's CEO, explains the programs' capabilities of 'sensor fusion, target identification, intelligent networking and command and control', all integrated into one. While the video shows interfaces of Lattice tracking and identifying various individuals and vehicles with mid-wave infrared cameras from a birds-eye perspective, Schimpf boasts about testing 'the concept' earlier on other missions 'like border security and air defence'. Now, however, 'Lattice is automating the operations of hundreds of robotic systems deployed in tactical environments around the world'.[107]

But Schimpf claims this is only the beginning. Over the past four years, Anduril developed an update to Lattice, called Lattice for Mission Autonomy, which enables 'human operators to actually interact and fight with teams of robotic vehicles to conduct dynamic and distributed operations in a highly contested environment'. Viewers see images of soldiers carrying and mounting uncrewed aerial vehicles, preparing them for their flights, while close-ups of the program's interface show

[100] Anduril, 'Anduril's Lattice: A trusted dual use – commercial and military – platform for public safety, security, and defense' (2023), available at: {https://www.anduril.com/anduril-s-lattice-a-trusted-dual-use-commercial-and-military-platform-for-public-safety-security/}.

[101] Ibid.

[102] Ibid.

[103] Hendrik Huelss, 'Transcending the fog of war? US military "AI", vision, and the emergent post-scopic regime', *European Journal of International Security*, 10:2 (2024), pp. 190–210.

[104] Anduril, 'Anduril's Lattice'.

[105] Anduril Industries, 'Lattice for Mission Autonomy'.

[106] Ibid.

[107] Ibid.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

multiple lines and dots flickering in all sorts of directions on the screens. Some seconds later, the uncrewed vehicles have taken off and are manoeuvring above a barren wasteland. Schimpf's voice-over points out that Lattice for Mission Autonomy is essential to 'make sense of the battlespace: identify threats and objects of interest, enhance survivability, orchestrate complex manoeuvres, and synchronise the delivery of effects'.[108] As he is pointing out these crucial capabilities, the video again shows the Lattice interface, with tabs and pop-up windows showing up, and small red and blue dots, representative of missiles and airplanes, briefly entering on screen.

The second part of the video features Kevin 'Shaka' Chlan, a former US Navy fighter pilot, who works for Anduril as a business developer. The demonstration zooms in on the CCA and autonomous vehicles, which can be powered and supported by Lattice for Mission Autonomy. 'In military operations', Chlan starts off, 'there is no extra credit for autonomy. Outcomes matter most.' As the video shows a black-and-white computer render of aircrafts connected by a white dotted line, flying between unpopulated mountain peaks and hunting a red-dotted target, Chlan argues that a 'team' of crude aircrafts and an autonomous CCA can provide 'affordable, distributed mass' to compete with 'near-peer adversaries'. But, according to Chlan, this is only workable if 'the complexity of such operations [is driven] down for the human operators'. The ideal solution is clear. Lattice for Mission Autonomy brings together 'the platforms, the piloting, and the payloads, so the groups of robotic systems can deliver mission outcomes autonomously under human supervision'.[109] What this 'human supervision' precisely entails, is – apart from a military officer behind a desk working on a laptop – not visualised in the video.

Towards the end of the demonstration, viewers see more computer renders of different operator teams working in close cooperation with augmented and virtual reality projections. Meanwhile, Chlan contends that Lattice 'fundamentally changes how humans and machines will work together', as it 'provides an adaptive digital platform for warfighters to engage with autonomous systems' across the entire mission cycle. Through Chlan's presence and interventions, Anduril aims to reflect military experience and know-how. For the grand finale of the demonstration, the droning electro soundtrack picks up steam and Brose's voice-over returns, while small groups of uncrewed vehicles manoeuvre across the familiar empty seas, skies, and landscapes. Anduril is driving 'a major shift in defence capability', Brose emphasises: a shift 'from a manpower intensive, hardware-defined military, to one that is software-centric and enhanced by mission autonomy'. According to Brose, 'this change is not optional, it is essential. It could mean the difference in the future between deterrence and conflict, winning and losing, and we don't have much time.'[110] The final shot of the demonstration shows Lattice's interface again, where the digitally enhanced map of the UK zooms out to reveal a view of the entire globe.

The virtual demonstration illustrates Anduril's efforts to depict algorithmically mediated military violence as a technical possibility that is military efficient and necessary to ensure the survival of the US and its democratic allies in the coming years. The pop-up windows, tables, calculations, lines and dots, brought together on screen within a neatly organised user interface, strengthen perceptions of control and calculability. Reinforced by the employees' voice-overs, evoking a sense of technical expertise and military experience, the virtual demonstration of Lattice represents the use of algorithmically mediated violence as a precise and limited action. But the true realities and experiences of war are absent.

The Lattice demonstration, like TITAN's, does not show actual battlespaces or incoming threats. It does not show how the software system would 'enhance survivability' of the uncrewed vehicles, or how complex manoeuvres are conducted. In the video, the battlefield is obfuscated and portrayed as an empty space, a virtual environment in which militaries can go about their business in whatever way they like, which contributes to the perception of war as a clean, controllable, and precise endeavour that has no unexpected twists and turns, no mistakes or misjudgements.

[108] Ibid.
[109] Ibid.
[110] Ibid.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

Moreover, in Lattice's virtual demonstration, targets are not discursively or visually acknowledged. There seem to be no harmful consequences to infrastructures or individuals, whether military or civilian. However, this is not representative of contemporary warfare. As the current armed conflicts in Ukraine and Gaza demonstrate, fighting occurs in densely populated areas, with civilians and civilian infrastructures closely entangled with military targets. The perception of waging combat coordinated by Lattice (or TITAN) as clear and clinical, which is also reinforced in other Anduril demonstrations,[111] is thus distant from the lived experiences and realities of warfare.

Following Brose's introductory statements, viewers would expect Lattice to foremost provide a solution to reinstate American deterrence. The core message of the virtual demonstration, however, centres on the idea that 'massive amounts of lower-cost, more-intelligent, more attritable military systems' will provide a clear battlefield advantage, making sure that Anduril's consumers 'never face a fair fight'.[112] The virtual demonstration of Lattice's capabilities shows its alleged effectiveness in a limited and precise *fight*. It remains unacknowledged, both discursively and visually, how 'affordable mass' would deter 'near-peer adversaries'. Anduril's demonstration constructs the perception that the next war – allegedly right around the corner – should be fought and won, rather than deterred.

This seems to be a broader narrative within the startup. Anduril, in Tolkien's mythology also known as the 'the Flame of the West', published an elaborate mission statement in 2022 titled 'Rebooting the Arsenal of Democracy', a not-so-subtle nod to Roosevelt's famous speech in a 1940 radio broadcast.[113] The 50-page booklet, which begins ominously with the question 'Xi Jinping believes he can out-innovative American defense. Is he right?', explains why software is the strategic key to enable 'affordable mass', and how the US government should radically alter its defence procurement procedure to allow innovation in the defence sector to flourish.[114] It features several telling visuals, such as a computer screen displaying the words ' > Hello, War!'. These visuals reinforce the perception that Western democracies are under immediate threat, presumably from China. Anduril's AI- and ML-enabled decision-support systems are portrayed as the strategic solution to win the coming wars, thereby framing investments in these capabilities as a moral responsibility for Western governments.

Luckey has mentioned in several public interventions that he 'specifically got into this business because [he] wanted to change the way that military buys technology'.[115] When a reporter asked him whether he was 'building products that the government does not even know it needs yet', Luckey answers:

> Very often. It's pretty rare that we work on something that is consensus in the government, where there's widespread belief that what we're doing is the right solution to the problem. Often we're building things that they've written off as not feasible or not viable. There was a lot of scepticism about applying artificial intelligence to defence … a lot of scepticism about artificial intelligence in general. ChatGPT was one of the most helpful technologies to us because it helped convince people that AI can do things they didn't believe computers could do.[116]

[111] Anduril Industries, 'Anduril brings autonomy to every mission', *YouTube* (22 March 2022), available at: {https://www.youtube.com/watch?v=5ldpPs7RB44}; Anduril Industries, 'Menace: Own the edge', *YouTube* (5 May 2025), available at: {https://www.youtube.com/watch?v=G05yUsHmd3M}.

[112] Anduril Industries, 'Lattice for Mission Autonomy'.

[113] Franklin D. Roosevelt, 'Fireside chat on the "great arsenal of democracy", December 29, 1940', in *The Public Papers and Addresses of Franklin D. Roosevelt, 1940* (New York: Macmillan, 1940), pp. 633–44 (p. 643).

[114] Anduril, 'Rebooting the arsenal of democracy' (2022), available at: {https://www.rebootingthearsenal.com}; see also Trae Stephens, 'Rebooting the arsenal of democracy', *War on the Rocks* (6 June 2022), available at: {https://warontherocks.com/2022/06/rebooting-the-arsenal-of-democracy/}.

[115] NBC News, 'Anduril: The startup building surveillance systems & drone-smashers for the military | NBC News Now', *YouTube* (3 October 2019), available at: {https://www.youtube.com/watch?v=CjsfaR-JcyU}.

[116] Bloomberg Originals, 'Palmer Luckey wants to be Silicon Valley's war king | The Circuit', *YouTube* (16 May 2024), available at: {https://www.youtube.com/watch?v=ItLFpYha6Wc}.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

Such statements demonstrate Anduril's objective and ability to influence the kind of products the US DoD invests in, and thus also how decision-makers perceive algorithmic warfare as a strategic and moral imperative. Anduril's focus on low-cost, high-intelligence, attritable systems, and on machine speed and autonomy in the operating software systems such as Lattice, seems to have convinced (at least part of) the US defence tech establishment, as several successful funding rounds and lucrative government contracts demonstrate.[117] But this means that critical questions on why the US and its allies should have 'cost-effective' means of killing and targeting in the first place, will move further to the background.

Anduril's virtual demonstrations of Lattice, just as Palantir's virtual demonstrations of TITAN, depict contemporary warfighting foremost as a bloodless 'virtuous' battle between uncrewed vehicles and unidentified red dots on a software program's interface. In reality, combat still involves people. The detrimental consequences of machine speed killing and 'cost-efficiency' in the targeting process are clearly visible in Gaza, where over 50,000 people have been killed by Israel's indiscriminate bombing campaign in less than two years.[118] The surge in targets – whether legitimate or in compliance with the rules of engagement of the mission or not – leads to a dramatic increase in civilian deaths and destroyed infrastructure. Russia's ongoing invasion of Ukraine equally epitomises the catastrophic effects of war for the populations and lands of the involved parties. By disconnecting the software programs that will increasingly oversee and coordinate contemporary military operations from the devastating consequences of the actions they propose, the videos demonstrating TITAN and Lattice represent algorithmically mediated military violence as a strategic and ethical necessity, but also as a phenomenon detached from the lived experiences and realities of war – a disturbing evolution that warrants further public and academic reflection.

Conclusion

Demonstrations of military capabilities have been a long-standing feature of international politics. Apart from their direct strategic and commercial effects, these public performances also shape how war and security are understood and perceived. The recent embrace of algorithmically mediated violence by states, militaries, and companies is a novel iteration of humanity's long-standing technological fetishisation of the virtual.[119] This evolution necessitates critical investigations of how *virtual* demonstrations of military decision-support systems – enabled by advances in AI and ML – construct and entrench certain perceptions of security and war. It is crucial to investigate the normative roles of private technology companies, given their rising influence on defence innovation in the sphere of AI and ML.

In this article we argued that virtual demonstrations conducted by commercial actors are international practices that allow tech companies to claim epistemic authority on the future of warfare by emphasising their technical and military expertise. They allow them to entrench knowledge production regimes by portraying 'virtual war' as 'virtuous war' – a clean, precise and efficient enterprise that obscures the realities of warfare while reinforcing the political message that the pursuit of AI is the strategically and ethically right thing to do for Western democracies. Focusing on the empirical illustrations of demonstrations of Palantir's TITAN and Anduril's Lattice, we assessed how private companies are becoming increasingly influential in shaping these security perceptions.

Our analysis centred around four main observations: first, the virtual demonstrations we analysed, together with their accompanying discourses, obscure the lived realities and experiences of war and violence, representing algorithmically mediated combat as an ethically unproblematic

[117]Knight, 'Anduril is building out the Pentagon's dream of deadly drone swarms'; John Tirpak, 'Anduril plans factory to produce autonomous weapons like CCA', *Air & Space Forces Magazine* (8 August 2024), available at: {https://www.airandspaceforces.com/anduril-arsenal-factory-autonomous-weapons-ccas/}.

[118]Bo and Dorsey, 'Symposium on military AI and the law of armed conflict'; Marijn Hoijtink and Robin Vanderborght, 'Israel's use of AI in Gaza war is morally unacceptable', *Intimacies of Remote Warfare* (12 December 2023), available at: {https://intimacies-of-remote-warfare.nl/media/op-ed/op-ed-israels-use-of-ai-in-gaza-war-is-morally-unacceptable}.

[119]Der Derian, 'Virtuous war/virtual theory'; Gonzalez, *War Virtually.*

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

business. Second, the demonstrations emphasise the primacy of software over hardware in enabling militaries to win future wars. In this way, they enable companies' claims to expertise and knowledge about the future of war and how it should be conducted. Third, there is a discrepancy between the virtual demonstration, which represents war as something to be *fought* and *won*, and the discursive, which represents war as something to be *deterred*. Finally, we see an overarching narrative in which these companies promote themselves and their AI- and ML-based decision-support systems as the silver bullet for the survival of Western democracies, presenting it as a moral imperative in the global struggle against competitors. Based on these observations, we argued in this article that military violence, enabled by AI and ML, is framed by the virtual and discursive representations of comprehensive military decision-support systems as a clean, controllable, and precise business, strategically and ethically necessary to ensure the enduring primacy of the US and its Western allies in the international system.

The increasingly prominent role of private tech companies, their virtual demonstrations, and their claims to epistemic authority, have important social and political consequences. As more citizens of 'Western' democracies observe such virtual demonstrations – which is not unlikely given their widespread circulation on social media – the thresholds that decision-makers experience to engage in violent military practices might become severely lowered. Given the broad (online) circulation of these demonstrations and the narratives constructed by technology companies, the visual depiction of war as a virtuous business is also likely to numb a significant part of the public when it comes to the horrifying consequences of organised violence. As Der Derian notes: 'unlike other forms of warfare, virtuous war has an unsurpassed power to commute death, to keep it out of sight, out of mind. In simulated preparations and virtual executions of war, there is a high risk that one learns how to kill but not to take responsibility for it. In virtuous war we now face not just the confusion but the pixillation of war and game on the same screen.'[120] Future research could further uncover the affective responses of different audiences to these virtual demonstrations.

Corporate actors are becoming increasingly influential in the military domain. These companies present themselves as expert actors in national security and defence. The demonstrations analysed in this article feature individuals such as engineers or former military personnel now working for Palantir or Anduril, reinforcing the companies' claims to epistemic authority in the sphere of war. Displaying the involvement of former US Navy fighters in the virtual demonstrations can contribute to the perception that the companies know what the military needs. However, what the involvement of individuals such as engineers also depicts is an increased entanglement between the technology industry, economic profit, and company interests together with the military domain and warfare. As part of this increased 'platformisation' of warfare, more research is needed to unpack the relationship between companies' commercial interests in developing and supplying AI decision-support platforms and their broader political role, including their claims to authority and expertise in the military domain.[121] The increased involvement of the technology industry in defence and security matters raise critical questions with regards to democratic oversight, transparency, and accountability, which need to be scrutinised further.

Finally, there are also severe ethical implications to these virtual demonstrations performed by private tech companies. Depictions of tech solutionism, the categorisation of the complexity of warfare into codes and numbers, and the primacy of software, among others, obscure the impact of warfare on humans, especially civilians. Such reflections have been explored in scholarship and analysis surrounding drone warfare, for example.[122] However, the increased scope and scale of integrating AI and ML technologies into military targeting processes, including as part of decision-support systems, are raising additional ethical, humanitarian, and security concerns. Reported uses

[120] Der Derian, 'Virtuous war/virtual theory', p. 773.

[121] Hoijtink and Van Der Kist, 'Platforms on the frontline'; Nadibaidze, 'Startups envisioning algorithmic warfare'.

[122] For instance, Aditi Gupta and Camilla Molyneux, 'Drones and civilian harm', in James Patton Rogers (ed.), *De Gruyter Handbook of Drone Warfare* (Berlin: De Gruyter, 2024), pp. 159–76.

https://doi.org/10.1017/eis.2025.10015 Published online by Cambridge University Press

of AI-based decision-support systems, particularly as part of Israel's indiscriminate bombing campaign in Gaza, highlight that AI and ML technologies are part of the realities of warfare affecting civilians who bear the brunt of death and destruction.[123] By reproducing visions of algorithmic warfare where AI- and ML-based decision-support systems are morally acceptable, technical solutions that empower military personnel in their tactical decision-making, companies such as Palantir and Anduril cast a shadow not only on the suffering and destruction, but also on the human aspects of war.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/eis.2025.10015.

Acknowledgements. The authors want to thank the members of the International Politics research group at the University of Antwerp, and specifically the PLATFORM WARS team for their valuable suggestions on earlier drafts of this article. We are also grateful for the comments we received during the presentation of our manuscript at the 2024 EISA PEC conference in Lille. A final word of thanks goes to the two anonymous reviewers and the editors of the *European Journal of International Security* for their generous and constructive feedback, which helped develop the presented argument more clearly.

Funding. Anna Nadibaidze's contribution to this article was supported by the European Research Council under the European Union's Horizon 2020 research and innovation programme (grant agreement No. 852123, the AutoNorms project).

Disclosure statement. No potential conflict of interest was reported by the author(s).

Robin Vanderborght is a doctoral researcher at the University of Antwerp, Belgium. His PhD research focuses on the concept of strategic stability and how it is made meaningful through different international practices. His research domains and interests are critical security studies, science & technology studies, visuality and pop culture in IR. His work has been published in journals such as *Critical Studies on Security* and *Peace Review*.

Dr Anna Nadibaidze is a postdoctoral researcher at the Center for War Studies, University of Southern Denmark, working on the Independent Research Fund Denmark-funded HuMach project as well as the European Research Council-funded AutoNorms and AutoPractices projects. She holds a PhD in Political Science from the University of Southern Denmark. Her research explores AI technologies in international security and global governance of AI in the military domain. Her work has been published in journals such as *Contemporary Security Policy, Ethics and Information Technology, and Journal of International Relations and Development.*

[123] Yuval Abraham, '"Lavender": The AI machine directing Israel's bombing spree in Gaza', + *972 Magazine* (3 April 2024), available at: {https://www.972mag.com/lavender-ai-israeli-army-gaza/}; Gould, Hoijtink, and Arentze, 'Assembling the future of warfare'.

Cite this article: Robin Vanderborght and Anna Nadibaidze, 'Military demonstrations as digital spectacles: How virtual presentations of AI decision-support systems shape perceptions of war and security', *European Journal of International Security*, 11 (2026), pp. 399–418. https://doi.org/10.1017/eis.2025.10015

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