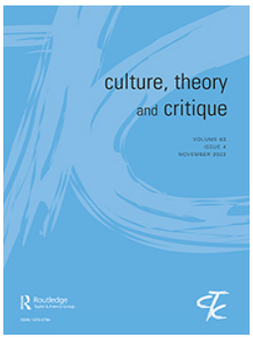

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Play for Ukraine: wargaming as a resistance pleasure

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ABSTRACT

This contribution addresses the significance of information and gaming technologies, particularly in the context of Ukrainian military resistance to the 2022 Russian invasion. Drawing on the case of the *Play for Ukraine* game developed by Ukrainian IT specialists, which involves launching attacks on websites purportedly serving the Russian army, this study examines how players effectively become digital soldiers through concealed Distributed Denial of Service (DDoS) attacks on Russian websites. While wargames have traditionally been recognised as integral to contemporary techno-politics and military education, this analysis argues that they can also serve as instruments of war resistance in cyberspace. By employing a science and technology studies (STS) perspective, this article explores the wargame as an active actor in sociotechnical relations. Through critical discourse analysis of *Play for Ukraine* social media accounts and media coverage, it delves into how wargames are embedded within war resistance practices, extending their impact beyond mere leisure and pleasure into realms of significant sociopolitical engagement.

KEYWORDS

Wargame; *Play for Ukraine*; war resistance; gamification; cyberattack

Introduction

As the number of military conflicts and wars continues to rise, there has been a growing academic interest in the field of digital warfare and wargames (Caffrey 2019; Reddie et al. 2018). This interest is closely linked to the active involvement of individuals in online participation in war events. The ongoing war in Ukraine embodies the concept of a 'participatory war' as described by Merrin (2018), wherein digital platforms assume a central role in transforming dynamics of warfare into a global spectacle. These digital platforms serve as conduits that transcend geographical boundaries, allowing individuals from around the world to actively engage with war realities. In this participatory landscape, the traditional boundaries of warfare are blurred, as the conflict becomes a shared experience accessible to a global audience.

Amidst the ongoing war in Ukraine, there has been a notable emergence of alternative practices aimed at fostering civic engagement in digital warfare. This burgeoning participation in the digital resistance movement involves providing practical support to the IT

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Army of Ukraine.[1] Central to this concept is the idea of individuals assuming the role of digital soldiers through the enjoyment of a simple digital game. *Play for Ukraine* is a browser-based iteration of the simple puzzle game *2048* which allows non-specialist non-combatant civilians to participate in the resistance to the Russian military invasion of Ukraine by sending DDoS attacks to Russian webservers. The game's existence was brief, spanning from February to June 2022.

While prior studies have predominately focused on the role of wargames within military training contexts, it is crucial to recognise their multifaceted nature. Wargames not only serve as training tools for military personnel but also act as platforms for digital engagement and support. Existing literature has primarily viewed wargames as integral components of military training preparations (Enstad 2022; McSorley 2019), as sources of entertainment and pleasure devices (Gros et al. 2020), as simulation tools for testing competing hypotheses, guiding data analyses, and revealing patterns that might otherwise remain unnoticed (Jensen, Valeriano, and Whitt 2024; Lin-Greenberg, Pauly, and Schneider 2022), as instruments for peace-building by reshaping narratives (Alhabash and Wise 2015; Del-Moral and RodrÍguez-GonzÁlez 2020), or perpetuating stereotypes within religiously diverse societies (Mirrlees and Ibaid 2021). Moreover, an expanding body of research has explored the subversive potential of wargames as tools for resistance against oppressive systems and ideologies (Kampe 2019; Saber and Webber 2017). By engaging in simulated conflicts and strategic decision-making, players are able to challenge dominant narratives, question authority, and explore alternative ways of thinking and acting.

However, there has been limited exploration into how wargames contribute to the complex social dynamics that develop and unfold within the social collaborative space shared by players and game developers. To address it, this paper introduces the concept of wargames as resistance practices, shifting the focus towards studying the collaborative aspects of resistance gaming. In this context, collaborative refers to the cooperative nature of the relationship between players and game developers within the realm of the ongoing war. It encompasses the shared efforts, exchanges and motivations that occur between these two groups as they engage with the gameplay experience.

This paper draws on a critical understanding of the war resistance against Russia, incorporating insights from science and technology research and examining the actor network of the wargame. STS has extensively advocated for recognising the agency of non-human entities (Latour 2005). Instead of displacing human actors, such as players or game developers, with nonhuman actors like computer hardware, STS adopts the symmetrical premise (Law 1986) that all actors possess equal analytical significance. The stability and transformation of game networks entail concrete efforts by actors, requiring them to influence the behaviour of other actors and enlist additional actors in the process. Through the application of critical discourse analysis, this paper attempts to unveil the underlying dimensions of the game and encourages a deeper examination of its core aspects, specifically gamification practices of cyberattacks, allegedly targeting Russian websites.

The present study examines the wargame *Play for Ukraine* as a way of enacting or 'doing' resistance in multiple ways. It specifically focuses on the social meanings ascribed to social practices (Schatzki 2002; Shove, Pantzar, and Watson 2012) and how players and

[1]The IT Army of Ukraine emerged in late February 2022 as a voluntary cyberwarfare organisation aimed at combatting digital intrusions into Ukrainian cyberspace.

developers interpret their actions. Grounded in social practice theory, this study aims to reconstruct the discursive practices and social meanings that arise and persist within the interactions of gameplay dynamics.

Challenging assumptions regarding the representation of war resistance and particularly its digital occurrences, this paper aims to address the following research questions: 1. How does the concept of war resistance manifest in the context of *Play for Ukraine,* particularly considering the element of gaming pleasure? 2. What social meanings related to resistance become apparent through an examination of *Play for Ukraine*? To answer these inquires, data from media outlets together with the social media accounts of *Play for Ukraine* were collected and analysed.

The paper begins by providing an overview of the research topic, directing attention to both historical and recent developments in Ukraine, particularly with a focus on digital warfare. Contrary to oversimplified analyses of the nuances of digital warfare, the subsequent section highlights debates within games studies on militarisation adapting to the recent phenomenon of 'war born games'. Despite their recent introduction, these games have found acceptance within gaming communities and among ordinary players. Building on this foundation, the paper provides an exploration of existing scholarly frameworks surrounding warfare, emphasising the importance of exploring the contradictory status of *Play for Ukraine* within the digital warfare landscape of the ongoing war in Ukraine.

This paper highlights the importance of framing players as agents of war resistance, emphasising the need to move beyond overly simplistic representations often found in scholarly literature. Subsequently, it outlines persistent challenges experienced by the players and the limitations of the existing modes of data access. It finally turns to the discussion of the game as a network of resistance practices and community-building. Drawing extensively from social media accounts and comments on various social network platforms associated with *Play for Ukraine*, the paper demonstrates that the game fosters communication, connectivity, and the formation of a community engaged in war resistance. In conclusion, while the paper acknowledges the ethical and legal complexities entwined within *Play for Ukraine*, it asserts that both developers and players, by immersing themselves in the game, are actively engaging in a unique manifestation of war resistance. This form of resistance runs in tandem with enduring physical military actions. Furthermore, the role of pleasure in this context cannot be overlooked. The enjoyment derived from participating in the game adds a layer of complexity to the narrative of war resistance. It provides players with a sense of agency and empowerment, fuelling their commitment to the cause. This pleasure-driven engagement not only sustains player involvement but also serves as a potent force driving the resistance movement forward. Thus, pleasure emerges as a critical component in shaping the efficacy and resilience of war resistance efforts within the digital realm of *Play for Ukraine*.

Background information: The war in Ukraine and digital warfare

In the aftermath of the massive Russian invasion of Ukraine on 24 February 2022, the information and media landscape became saturated with reports from ordinary citizens to news anchors, detailing the intensification of the war. While the ongoing war

continues to exacerbate economic, humanitarian, and refugee crises not only in Ukraine but also worldwide, what often goes unacknowledged is what Chen and Ferrara (2022) call the 'second battlefield' emerging in the online sphere. This secondary battlefield encompasses 'the use of social media to garner support for both sides of the conflict' and is embedded within the broader context of information warfare. Amidst a prevailing narrative of misinformation and disinformation prevalent both in Ukraine and Russia, it is crucial to recognise that this war should not be viewed as an isolated event. Reflecting on events back to 2014, one can notice that even during the previous Russian invasion of Ukraine, which involved the partial military occupation of the Donetsk and Luhansk regions and the annexation of Crimea, the presence of an online / digital battlefield was already evident (Baezner 2018; Elledge 2015).

The enhancements to the legal framework supporting a decentralised model of governance, coupled with guidance from pioneers in delivering public e-services and fostering digital society, such as Estonian governmental institutions and think tanks (e-Governance Academy 2020), have not only strengthened Ukraine's efforts in digitising government services (Lemke, Ehrhardt, and Popelyshyn 2021) but have also positioned the country at the forefront of the digital battlefield. Additionally, Ukrainian officials are collaborating with the Estonian government on initiatives related to user experience design (UX/UI) and the implementation of digital public services through the Diia code (Shevchenko 2022).[2] This strategic partnership underscores Ukraine's dedication to fortifying its position in the digital domain, thereby solidifying its stance on the digital battlefield.

In February 2022, amidst the Russian invasion, Ukraine experienced a series of cyber incidents, ranging from data wipers to Distributed Denial of Service (DDoS) attacks and phishing campaigns. Ukrainian educational institutions became prime targets for hackers, while Russian organisations found themselves inundated with phishing emails purportedly originating from hackers affiliated with China. Hacker collectives claiming allegiance to the Anonymous movement declared a 'cyberwar' against Russia, launching attacks on a Russian Ministry of Defence database and state television channels. Moreover, Russian systems faced DDoS attacks initiated by volunteer hackers from the IT Army of Ukraine (Vu et al. 2022).

During these digital onslaughts, the digital battlefield emerges as a realm ripe with opportunities for resistance, despite its inherent vulnerabilities. With the widespread reliance on and dissemination of information through social media platforms like Telegram and Twitter, individuals can now engage to some extent in the ongoing conflict almost in real-time. Scholars note that this war stands out as one of the most transparent conflicts observed to date (Karalis 2024), largely due to the ubiquity of digital devices.

Of particular significance are the myriad ways individuals can actively 'participate' in the online battlefield. This involvement spans various forms of engagement, including crowdfunding efforts to acquire drones and military ammunition in support of the Ukrainian army, or launching cyberattacks on Russian websites implicated in financing the Russian military. Alternatively, individuals may opt for a passive role, merely staying abreast of real-time developments on the battleground.

[2]Diia (diia.gov.ua) is a mobile app and web portal launched in 2020 by the Ukrainian government. It allows Ukrainian citizens to use digital documents on their smartphones instead of physical ones for identification and sharing purposes.

Amid ongoing discussions and hypotheses surrounding the capability of tools and tactics derived from the cybercrime domain to enable non-experts to participate actively in real-time warfare, the current Russian war in Ukraine provides an empirical opportunity to scrutinise this phenomenon. This situation highlights the urgent need to explore the interaction between resistance practices, cyber warfare, and gaming within military conflicts. By delving into this intersection, this article seeks to expand and enrich our understanding of the complex dynamics at play in contemporary warfare.

Rethinking gaming in war times: positioning gaming in militarisation discourse

It is widely acknowledged that 'games and gaming have been with us since the beginning of mankind, as is war' (Schijven and Kikkawa 2022, 219). Game developers frequently draw inspiration from science fiction narratives, especially post-apocalyptic scenarios, as primary settings for their creations. Additionally, modern video games often incorporate societal fears related to apocalyptic narratives. For instance, during the 1950s and 60s, the Cold War theme, particularly the fear of nuclear weapons, dominated the gaming landscape (Kapell and Elliott 2013). In the 1960s and 70s, pandemics and infections, similar to SARS viruses, became one of the main themes for game creators (Meier 2022).

In the twenty-first century, there has been a noticeable change in game studies, emphasising the rich cultural potential, aesthetic value, narrative significance, and social conviviality inherent in gaming (Hirst 2021). Wargames, in particular, aim to enhance human reactions and strategic thinking in unpredictable situations, providing insights into warfare itself. Initially, wargames were not specifically focused on expressing resistance or asserting civil positions in conflicts; instead, they were more broadly associated with video games and war-like activities in digital spaces.

The discourse of militarisation has permeated civilian daily life in Ukraine, with technologies and games initially designed for military purposes seamlessly integrating into domestic contexts. What adds a layer of interest to this phenomenon is the manifestation of civil militarisation, as 'exemplified by the contemporary enmeshing of gaming technologies within the operational field of war' (Pugliese 2016, 501). Notably, the design of military drones is intentionally influenced by gaming technology, with flight controls resembling video game controllers, aiming to make them 'more intuitive for a generation of young soldiers raised on games like *Gears of War* and *Killzone*' (Mulrine 2011). Following the events of 9/11, critical analysis of video war games underlines their portrayal of '"real" world conflict scenarios' as military operations in regions like the Middle East (Power 2007, 272). These digital war games, as observed by Stahl (2004, 21), serve as an invitation to participate in the 'militarism of consumption and pleasure'. It has been noted that war discourse subtly becomes a driving force for leisure activities, as the video and sound effects of the games contribute to the player's detachment from reality, akin to interactive spectacle pleasure. The pleasure derived from playing online games lies in the intricate involvement with the software's agency (Sicart 2020).

The motivation driving players extends beyond a mere sense of competitiveness; as I argue here, it also involves a genuine enjoyment of the gameplay approach, such as allegedly engaging in attacks on Russian websites, and a sense of pride in sharing experiences within the gaming community. Foucault (2008 [1978], 95) suggests that pleasures can

function as a means of resistance against dominant power structures, stating that 'where there is power there is resistance'. He argues that individuals can resist dominant power dynamics by finding pleasure in activities that diverge from societal norms and expectations. From this perspective, pleasure emerges as a potent instrument of resistance, as it enables individuals to assert their autonomy and agency in the face of oppression.

Through gameplay that challenges perceptions of warfare and conflict, players can resist dominant discourses. In this manner, pleasure becomes a form of resistance against Russia, allowing individuals to envision and enact novel approaches to confronting power.

Moreover, the pleasures of wargaming intersect with material relations of power by highlighting the agency and autonomy of players within digital spaces. While Foucault's framework emphasises the ways in which pleasure can be leveraged against oppressive systems, the pleasures of wargaming demonstrate how individuals actively negotiate and navigate power structures within virtual environments. Players exercise agency in choosing how they engage with the game, whether through competitive play, collaborative efforts, or acts of resistance, thereby shaping their own experiences and interactions within the game world.

In this framework, gaming technologies and war technologies are intertwined, constituting integral components of each other. The cross-pollination of military and civilian technological developments is identified as a fertile ground for innovations that shape various aspects of our daily lives (Hammond and Pötzsch 2019; Lenoir and Caldwell 2018; Mead 2013; Schleiner 2017; Stahl 2009). However, it also raises questions about whether the military's research and development sector and its impact on civilian life represent another facet of militarisation. Expanding upon Pugliese's (2016) primary contention that gaming practices and technologies effectively shape military technologies, I argue that wargames can be considered as 'actors' in resistance practices, especially within cyberspace. By adopting the perspective of 'actors' (Latour 2005), wargames emerge as active forces rather than passive entities within contemporary warfare dynamics. These digital representations of conflict hold the power to shape perceptions, strategies, and narratives surrounding modern war practices.

An additional significant aspect of wargame development entails exploring the discourse of cybersecurity (Stohl 2006). The use of hacktivism as a component of the ongoing war in Ukraine demands special attention. Digital tools have been utilised in various capacities – serving as channels for communication and collaboration, but also as instruments of cybercrime. What adds intrigue to the current case study is the amalgamation of wargaming with real-time cyberattack mechanisms. The concept of 'soft' warfare in cyberspace is often linked to the well-established concept of 'soft power'(Nye 2004, 2021) in international relations. In this context, 'soft war' is considered analogous to 'unrestricted warfare' (Lucas 2017, 77), with cyber conflict representing one of its manifestations.[3]

A closer examination of the historical evolution of cyber activism reveals that it wasn't long ago that 'activists' began exploiting software vulnerabilities for various illicit financial operations, including the theft of credit card numbers or personal identities.

[3]'Soft power' in international relations refers to diplomacy, trade agreements, or other policy instruments that can be employed as effectively as military forces or other forms of 'hard power'.

Over time, cyber activism evolved to support political objectives, with hacktivists engaging in diverse forms of political action, such as launching DDoS attacks to temporarily disrupt governmental or commercial websites, spreading software 'worms' capable of infecting multiple computers, and penetrating virus protection software to eventually gain control over computers, among others. Amidst the Russian invasion of Ukraine, several hacktivist groups have made their presence known through public declarations. Notably, the hacktivist collective Anonymous emerged as a prominent player in this hybrid warfare scenario (Svyrydenko and Mozgin 2022). For example, the official Twitter account of the Anonymous group, @YourAnonOne, declared, 'The Anonymous collective is officially in cyber war against the Russian government. #Anonymous #Ukraine' (Anonymous 2022), often accompanied by reports of cyberattacks targeting governmental sites in Russia and Belarus.

In this manner, it becomes apparent that cyberattacks from both factions have become 'the norm' in the ongoing war in Ukraine. Notably, there exists a significant collaboration between the IT Army of Ukraine and the hacktivist group Anonymous, as 'The Anonymous (@SpoogemanGhost) and IT Army of Ukraine (@ITArmyUKR) claim to hack LTE routers with 88 websites of the Russian Federation' (Karmakar 2022). To delve deeper into the nuances of war resistance, the subsequent section focuses on the case study – the game *Play for Ukraine* – shedding light on its conceptualisation, developmental stages, and the involved parties.

Play for Ukraine

With the onset of the Russian invasion of Ukraine on 24 February 2022, a notable surge in cyber resistance initiatives has been observed. Alongside solidarity efforts, resistance has manifested at various levels, both individual and collective. Notably, resistance has taken on a multidimensional nature, with some actions being executed in real-life settings (such as the preparation of Molotov cocktails to destroy Russian tanks) and others in digital format (using hashtags like #StopRussia, #StandWithUkraine). Interestingly, digital initiatives have also extended to game development.

To understand the background preceding the Russian invasion of Ukraine, it is worth noting the discussion around the creation of a volunteer cyber defense army in Ukraine. In spring 2022, this concept was put to the test with the ad-hoc formation of a unit of IT volunteers that evolved into the IT Army of Ukraine without a predefined structure or plan. However, it is evident that the IT Army of Ukraine engages in DDoS attacks on Russian websites (Kirichenko 2024).

On 28 February 2022, the world became aware of a new game, *Play for Ukraine*, developed by the Lviv IT cluster (Holich 2022) shortly after the commencement of the Russian military invasion of Ukraine. Accessible to players globally, the primary objective of the game is to block Russian websites by overloading them. The game, a version of the simple sliding puzzle game *2048*, is designed to be easy to play, with developers asserting that it 'doesn't do any harm to your (player) browser' (playforukraine.live 2022).[4] However, Ukrainian-based players are recommended to turn on their Virtual Private Network

[4]The game *2048*, developed by the Italian web developer Gabriele Cirulli in 2014, gives a possibility for the single player to slide the puzzle so that the numbered tiles on a grid have to be combined to create a tile with a number 2048.

(VPN) before playing to conceal their IP addresses while participating in the DDoS attack.

With widespread attention on the situation in Ukraine and daily missile attacks on civilian infrastructure, news media extensively covered 'games born of war' (Danylov and Hall 2022), with *Play for Ukraine* emerging as a prominent example. *Cybernews* (Lapienytė 2022) reported on a new wargame targeting Russian websites, revealing that 'each player sends about 20,000 requests to block sites that serve the Russian army in one hour of play'. Simultaneously, *Fast Company* (Sullivan 2022) published an extended essay titled 'This game crowdsources cyberattacks against Russian websites' highlighting the game as a platform that 'crowdsources and gamifies DDoS attacks on Russian websites', and emphasising that 'it's already racking up successes'. Opinion pieces about the game have circulated in various press outlets across different countries (Lorenzini 2022; Nast 2022; Ronnie 2022).

According to Soesanto (2022), *Play for Ukraine* distinguishes itself from other DDoS websites for several reasons: (a) it was launched on February 28, just four days after the commencement of the Russian invasion; (b) it claims to be verified by the Ukrainian Cyberpolice; (c) it was promoted on the official Lviv Regional Administration website; (d) it has received official endorsements from the Ukrainian Ministry of Digital Transformation and the Ukrainian Parliament.

Crucially, the game developers opted not to disclose the specific Russian websites targeted for attack. The only available information, as of a post on 3 March 2022, states that '123k players performed 153 billion attacks' (playforukraine 2022a). Only a few attacked websites can be identified through the publication of results on the *Play for Ukraine* Twitter account. For instance, on 5 March 2022, the developers claimed attacks on the websites of Minbank, Smpbank, Uralsib, MTS banks, as well as Rosneft and Gazprom (playforukraine 2022b, 2022b). This development sparked various discussions regarding the legality and ethics of such attacks. Soesanto (2022) highlights that similar cases, involving the use of simple tools like the Low Orbit Ion Cannon to perform DDoS attacks, have been taken to court. Therefore, the *Play for Ukraine* game presents an interesting case study, encompassing several issues, including legal and ethical aspects.

The developers of *Play for Ukraine* advise players, 'Before starting the game, turn on the VPN if you play from the territory of Ukraine' (playforukraine.live 2022). According to Soesanto (2022), this instruction implies that users employing VPNs reroute their traffic through server(s) located outside Ukraine, notably in EU and NATO member states, to execute DDoS on Russian sites. The primary reason for this approach is that Russian companies have blacklisted Ukrainian IPs.

Additionally, it is unclear when the game officially begins (to attack Russian websites). Statements from the Frequently Asked Questions (FAQ) section and the game's Twitter account suggest that the potential attack commences with 'every move'. Furthermore, it is emphasised that 'even if you just leave this page open on your computer, the attack continues' (playforukraine 2022d). As a result, the primary objective of the game can be achieved without actively playing it. Thus, *Play for Ukraine* offers players more than just a puzzle-solving experience; it provides the pleasure of real participation in digital warfare. By joining the game, players become active agents in the virtual battlefield, contributing to resistance efforts against Russian websites. This sense of agency and participation adds a layer of pleasure beyond mere entertainment, satisfying individuals' desire for involvement in ongoing war resistance.

Methods

The inception of the *Play for Ukraine* game was catalysed by news headlines, prompting an exploration of broader narratives surrounding war games as a form of resistance. While the game was documented through social media accounts and Twitch streams, the transient nature of Twitch hindered access to live gaming archives, contrasting with the more stable data collection from social media platforms.

Analysing *Play for Ukraine* involved delving into the paratexts (Consalvo 2017) generated around the game's engagement and discourse, including articles, commentaries, and social media accounts assembled from February to August 2022. Employing critical discourse analysis, I scrutinised *Play for Ukraine*'s social media accounts to discern layers of meaning and engagement among followers, subscribers, and journalists, considering how cultural narratives about *Play for Ukraine* form and are reflected in media coverage and audience perceptions.

The analysis focused on several accounts associated with the game, including @playforukraine1 on Twitter, PlayForUkraine (Cyber Cossacks) on Telegram, and @playforukraine.life on Instagram. These accounts were identified through desk research, which involved reviewing social media platforms and news materials connected to the game.

@playforukraine1 on Twitter, with 949 followers, primarily shares news related to the game and associated media coverage, predominantly using English language in its tweets and maintaining consistent activity primarily during working days until the end of March 2022. Established in February 2022, its bio reads, 'Open playforukraine.org and help Ukraine right now!'.[5]

PlayforUkraine (Cyber Cossacks) on Telegram, with 3616 subscribers was created on 2 March 2022.[6] The channel maintained regular posting until end of March 2022 and consistently garnered significant engagement from its audience. The content of the posts centers around players achievements and purported results of the performed website attacks.

@playforukraine.life on Instagram, with 6144 followers joined the platform on 3 March 2022.[7] Its bio differs slightly from the previous two accounts, stating, 'Play *2048* & help Ukraine now. Simple & safe way to help UA by playing online. Just open the website and overload Russian military resources! Use VPN. playforukraine.org'. The bio succinctly outlines the game's objective and provides general instructions on how to play it. Regular posts were made until April 2022.

These accounts shape how users perceive and engage with the game, war, pleasure, and resistance by disseminating information, fostering engagement, and framing the narrative surrounding *Play for Ukraine*. They actively contribute to the formation of cultural narratives by showcasing player stories, providing updates on game achievements, and promoting messages of solidarity related to the game's significance in the ongoing war. These activities collectively impact users' perspectives and levels of involvement in *Play for Ukraine*.

[5]https://twitter.com/playforukraine1 Last accessed 17 March 2024.
[6]https://web.telegram.org/k/#@playforukraine Last accessed 17 March 2024.
[7]https://www.instagram.com/playforukraine.life/?hl=en Last accessed 17 March 2024.

War resistance as collaborative practice

In recent decades, the scholarly discourse on war and conflict resistance has extended beyond a mere examination of games themselves. It penetrates the intricate relationship between players and games, viewing collaborative practices as a complex social phenomenon capable of reshaping the order and meaning within socio-technical systems. *Play for Ukraine* serves as an example of a global network of players coming together to develop cooperative skills. These insights underscore the transformative potential of wargame initiatives in shaping social structures. Consequently, the impact of the *Play for Ukraine* game is twofold – functioning both as a digital war game and as a covert (to players) act of gamifying cyberattacks.

Drawing an intriguing parallel, one can liken the *Play for Ukraine* game to other user-friendly digital tools that democratise access to technology, such as website-building platforms that do not require knowledge of coding. Like those platforms enable individuals with minimal coding knowledge to create professional-looking websites, *Play for Ukraine* motivates every player, regardless of technical expertise, to contribute to the cause through simple actions. Much like assembling a website with drag-and-drop elements, participating in the game involves accessible tasks that collectively exert a significant influence on a broader landscape of war resistance. Through this analogy, the game emerges as not only a means of entertainment but also as a vehicle for empowering individuals to actively engage in cyber resistance efforts, transcending traditional boundaries of skill and expertise.

In this dynamic context, *Play for Ukraine*, along with its networked technological assemblage, serves as a conduit connecting cyber specialists with ordinary citizens eager to express their stance in the ongoing war by enhancing their basic skills in the *2048* game. It serves as more than just a digital pastime; rather, *Play for Ukraine* embodies the narrative of 'being a combatant at home' (Pugliese 2016, 513), effectively bridging the gap between cyber experts and laypeople looking to actively participate in resistance efforts.

Furthermore, *Play for Ukraine* can be interpreted as an assemblage of gaming pleasure and war resistance practices, symbolising the realisation of a digital vision for independence. Therefore, it warrants analysis not merely as a leisure pursuit but as a unifying force within the broader network of war resistance, drawing inspiration from historical examples of 'liberating technology', such as the pivotal role played by online platforms during the Orange Revolution in Ukraine and the Arab Spring. In this light, *Play for Ukraine* aligns closely with the category of 'war-resisting technology', embodying the potential to catalyse transformative social change in the face of war and oppression.

Enacting war resistance through the game: gamification of cyberattack

Overview of social media discourse

Digital resistance, a well-established phenomenon since the Arab Spring (2010–2012), has taken on a distinctive character in the context of the Russian invasion of Ukraine, evolving into a more engaging and interactive form.

Distinct patterns of interest over time emerged in the targeting of various website categories. The focus ranged from http://oaovoentorg.ru, the major provisioning company

for the Ministry of Defence of the Russian Federation, to banks and financial services operating in Crimea and Chechnya (playforukraine 2022e). From the beginning, the element of mystery surrounding the specific websites targeted by playing the game has been met with scepticism from the players, who even considered the possibility of a counter-play strategy, expressing concerns about potential false sites made by the Russians to attack Ukrainian servers: Responding to such doubts, the *Play for Ukraine* account asserted that the Russians 'are too busy saving their money and looking for a place to escape', dismissing the notion of a false site (Twitter comment on playforukraine 2022f). The uncertainty about the game's source was acknowledged by prominent media outlets like *Fast Company* (Sullivan 2022), *Wired* (Nast 2022), and *Forbes Ukraine* (Grazdan 2022), contributing to players' overall scepticism and a general lack of trust in any source.

Leveraging the commonly known puzzle game *2048* as its foundation, some users suggested that the *Tetris* background version better aligns with the game's purpose, emphasising the connection to *Tetris*, which 'was invented by a Russian. We could use a Russian Game, to play a game with the Russians' (Twitter comment by @ddesignProducts on playforukraine 2022f). This suggestion introduces a nuanced layer of meaning and engagement for users, significantly enhancing both the user experience and collaborative resistance effort. Firstly, leveraging *Tetris*, a globally recognised and iconic game, as the background version of *Play for Ukraine* taps into the familiarity and nostalgia associated with the game. Many users are likely to have fond memories of playing *Tetris*, which can evoke a sense of comfort and enjoyment. By incorporating *Tetris* into *Play for Ukraine*, users would be provided with a familiar and accessible platform for engagement, making it easier for them to participate in the collaborative resistance effort. Secondly, the suggestion to use *Tetris* in *Play for Ukraine* is particularly significant due to its historical connection to Russia. *Tetris* was invented by Alexey Pajitnov, a Russian computer scientist, and its origins are deeply rooted in Russian culture. By emphasising the connection to *Tetris* in the context of *Play for Ukraine*, players are invited to engage in even more symbolic act of resistance. The abovementioned Twitter comment highlights the confrontational nature of the gameplay, where users harness the very tools associated with their perceived adversaries to resist and challenge their actions.

The formation of the actor network is evident from the early stages of introducing the *Play for Ukraine* game, with participants suggesting websites to be opposed by the game, such as 'Rumble', a Canadian website accused of 'spreading Russian misinformation' (Twitter comment by @Michael54444552 on playforukraine 2022f), or Yandex. Notably, *Play for Ukraine* commenters sought the assistance of Anonymous (@YourAnonNews) in spreading the news about the game's recognition by the Cyberpolice of Ukraine.

Criticism of the game has revolved around concerns that it places excessive strain on local internet providers through performing cyberattacks on Russian websites (playforukraine 2022g). Additionally, ethical and legal dimensions have been raised, questioning the involvement of children in the game and raising copyright issues related to the original game *2048*.

The gamification of cyberattack

Gamification entails integrating specific game components and amplifying their effects in non-game contexts (Deterding et al. 2011). Self-Determination Theory (SDT) serves as a

valuable theoretical framework to understand why gamification features in cyberattacks might be more effective in promoting and demonstrating resistance against the aggressor. SDT argues that individuals' motivations to engage in certain behaviours depend on three factors: autonomy, competence, and relatedness. Autonomy emphasises individuals' need to be 'self-endorsed' to foster willingness, competence requires facing challenges, while relatedness posits the pursuit of being psychologically connected to others.

However, as a war resistance practice, gamification can become problematic when it aims to manipulate players' behaviour by encouraging obsessive engagement while discouraging rational self-reflection. This concern, echoed by scholars studying social media platforms and video games in recent years, suggests that gamification is underpinned by the same psychological and design insights that are used in video gambling machines to condition addictive behaviours.

The gamification elements incorporated into *Play for Ukraine* are designed to foster what Kim and Werbach (2016) define as 'grinding' in video game culture – a concept that entails prolonged engagement in repetitive tasks in pursuit of a desired outcome. In the context of *Play for Ukraine*, the initial impetus to engage with the game gradually transforms into a compelling desire to actively resist adverse conditions faced by Ukraine in the early stages of the war. However, the realisation that simply leaving the game open in a browser allows it to continue its work passively introduces an interesting dimension, especially concerning its implications for pleasure. It suggests that players can find satisfaction not just from actively engaging with the game but also from the passive contribution they make to the resistance effort. This passive involvement adds another layer to the pleasure derived from participating in digital warfare. In my analysis of the *Play for Ukraine* game, its associated social media accounts, users' comments, and media coverage, it became evident that players responded to the attempt to garner consent through gamification in two distinct ways: through grinding and by forming a cohesive player network.

In the realm of video gaming terminology, grinding refers to a mode of gameplay where players align their interests with those of *Play for Ukraine*. This alignment is palpable through players' enthusiastic involvement and their consent to gamification features. As players immerse themselves in the gameplay experience, they willingly undertake repetitive tasks and challenges with the overarching goal of contributing to the resistance efforts in support of Ukraine. This sustained engagement reflects a deep-seated commitment to the cause, as players invest their time and effort into advancing the objectives set forth by *Play for Ukraine*.

Moreover, the formation of a robust player network emerges as another significant response to the gamification strategy employed in *Play for Ukraine*. As players navigate through the game and interact with its various features, they forge connections with like-minded individuals who share their dedication to the cause. This network of players serves as a supportive community where individuals exchange strategies, provide encouragement, and collectively amplify their impact on the resistance movement. Through collaborative efforts and solidarity within this player network, participants not only bolster their individual resolve but also contribute to the collective momentum driving the resistance with gaming pleasure against adverse circumstances faced by Ukraine.

It is crucial to emphasise the pivotal role of the player network's structure in orchestrating a DDoS attack, requiring the utilisation of multiple machines to flood target

websites with malicious traffic. *Play for Ukraine* shows that grinding became a prevalent mode of play, indicating a willingness to embrace the gamification of potential cyberattacks and resistance through the generation of numerous requests to the targeted websites.

Furthermore, the examination of *Play for Ukraine* reveals that the formation of the player network amplifies the effectiveness of grinding within the game. Through collaborative coordination, players pool their resources and efforts to maximise the impact of their actions, particularly in launching DDoS attacks. This collaborative effort highlights the transformative potential of gamification pleasure in mobilising individuals to actively participate in resistance movements and advocate for Ukraine's cause in the face of adversity.

Conclusion

A significant yet unstated assertion of this article is that games like *Play for Ukraine* signify a departure from traditional military-inspired games. They not only convey political and military agendas to users and train them for combat but also enlist them to actively participate in a community-oriented manner. Despite its brief existence and the legal controversies surrounding it, *Play for Ukraine* epitomises a digital warfare ecosystem where resistance practices are deemed valuable through any available means. For such 'war-born games' to flourish, collaboration and the establishment of a supportive network among developers and players are essential, alongside infrastructural support from content delivery networks like *Cloudflare*.[8]

Play for Ukraine has the potential to reorient our understanding of several key aspects in the realm of digital warfare and beyond. It prompts a reconsideration of the intersection between gaming and military practices, challenging traditional notions of warfare by blurring the lines between gaming, cyber activism, and real-time resistance. Methodologically, the game introduces a novel approach to war resistance in cyberspace. The gamification of DDoS attacks and the involvement of a global player base highlight the adaptability of gaming technologies as tools for resistance, reshaping our perception of how unconventional methods rooted in leisure and entertainment can significantly influence contemporary geopolitical conflicts.

Furthermore, *Play for Ukraine* raises crucial questions about the future of warfare, emphasising the potential effectiveness of crowd-sourcing and gamification in military practices. By transforming war resistance into a participatory and accessible online activity, it challenges established norms and expectations of military engagement. This reorientation encourages reflection on how digital platforms and gaming technologies might become integral components of future warfare strategies.

Moreover, *Play for Ukraine* encourages a more profound exploration of the role of pleasure in the context of digital warfare. The integration of pleasure into the act of resistance through gaming introduces a fresh perspective. Participation in the game is not solely driven by a sense of obligation or duty; rather, it offers players a sense of enjoyment and satisfaction. The dimension of pleasure adds layers of complexity to the narrative of war resistance by highlighting the psychological and emotional experiences of individuals

[8] *Cloudflare* is an American company that provides various content delivery network services, including DDoS mitigation.

involved in digital warfare. It has the potential to challenge established perspectives on the relationship between pleasure, conflict, and resistance, thereby highlighting the multifaceted nature of contemporary warfare in the digital age.

In summary, the *Play for Ukraine* game presents broader implications for the future of warfare, the potential gamification of military practices, and the role of pleasure in war resistance. Further exploration of these dimensions would contribute to a more comprehensive understanding of the transformative impact of this digital phenomenon on our conceptualisation of conflict, technology, and resistance.

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References

Alhabash, Saleem, and Kevin Wise. 2015. "Playing their Game: Changing Stereotypes of Palestinians and Israelis through Videogame Play." *New Media & Society* 17 (8): 1358–1376. https://doi.org/10.1177/1461444814525010.

Anonymous. (@YourAnonOne). 2022. "The Anonymous Collective is Officially in Cyber War against the Russian Government. #Anonymous #Ukraine." Twitter, 24 February, 10:50 pm. https://x.com/YourAnonOne/status/1496965766435926039.

Baezner, Marie. 2018. "Hotspot Analysis: Cyber and Information Warfare in the Ukrainian Conflict." Report. *CSS Cyberdefense Hotspot Analyses. CSS Cyber Defense Project*. Zurich: ETH Zurich. https://doi.org/10.3929/ethz-b-000321570.

Caffrey, Matthew B. 2019. *On Wargaming: How Wargames Have Shaped History and How They May Shape the Future*. Naval War College Newport Papers 43. Newport, Rhode Island: Naval War College Press.

Chen, Emily, and Emilio Ferrara. 2022. "Tweets in Time of Conflict: A Public Dataset Tracking the Twitter Discourse on the War between Ukraine and Russia." arXiv. http://arxiv.org/abs/2203.07488.

Consalvo, Mia. 2017. "When Paratexts Become Texts: De-Centering the Game-as-Text." *Critical Studies in Media Communication* 34 (2): 177–183. https://doi.org/10.1080/15295036.2017.1304648.

Danylov, Oleg, and Charlie Hall. 2022. "Ukrainian Game Developers Use Their Art to Fight Back against the Russian Invasion." *Polygon* (blog). 8 June 2022. https://www.polygon.com/23157926/ukraine-russia-war-indie-games.

Del-Moral, M. Esther, and Christian RodrÍguez-GonzÁlez. 2020. "War Video Games: Edu-Communicative Platforms to Develop Critical Thinking against War?" *Journal on Computing and Cultural Heritage* 13 (4): 33:1–33:13. https://doi.org/10.1145/3404196.

Deterding, Sebastian, Dan Dixon, Rilla Khaled, and Lennart E Nacke. 2011. "Gamification: Toward a Definition." *CHI* 2011, 4.
e-Governance Academy. 2020. "E-Governance Support to Ukraine." E-Governance Academy. 2020. https://ega.ee/project/e-governance-support-to-ukraine/.
Elledge, Katrina. 2015. *Ukraine: Dissident Capabilities in the Cyber Age*. Research Report. Center for Strategic Intelligence Research, National Intelligence University.
Enstad, Kjetil. 2022. "Professional Knowledge through Wargames and Exercises." *Scandinavian Journal of Military Studies* 5 (1): 233–243. https://doi.org/10.31374/sjms.130.
Foucault, Michel. 2008 [1978]. *The History of Sexuality, Volume One: The Will to Knowledge*. London: Penguin.
Grazdan, Olena. 2022. "Львівські айтішники створили гру, яка атакує сайти російської армії. У неї може грати кожен охочий — Forbes.ua." *Forbes.ua*, 17 March 2022. https://forbes.ua/news/lvivski-aytishniki-stvorili-gru-yaka-atakue-sayti-rosiyskoi-armii-u-nei-mozhe-grati-kozhen-okhochiy-17032022-4768.
Gros, Lucio, Nicolas Debue, Jonathan Lete, and Cécile van de Leemput. 2020. "Video Game Addiction and Emotional States: Possible Confusion between Pleasure and Happiness?" *Frontiers in Psychology* 10. https://www.frontiersin.org/articles/10.3389fpsyg.2019.02894.
Hammond, Philip, and Holger Pötzsch. 2019. *War Games: Memory, Militarism and the Subject of Play*. London: Bloomsbury Publishing.
Hirst, Aggie. 2021. ""Videogames Saved My Life": Everyday Resistance and Ludic Recovery among US Military Veterans." *International Political Sociology* 15 (4): 482–503. https://doi.org/10.1093/ips/olab018.
Holich, Vitalii. 2022. "Lviv Programmers Created the Game That Helps Block Russia's Military Websites." *Lviv Now*, 3 March 2022. https://tvoemisto.tv/en/news/lviv_programmers_created_the_game_that_helps_block_russias_military_websites_128659.html.
Jensen, Benjamin, Brandon Valeriano, and Sam Whitt. 2024. "How Cyber Operations Can Reduce Escalation Pressures: Evidence from an Experimental Wargame Study." *Journal of Peace Research* 61 (4): 119–133. https://doi.org/10.1177/00223433231219440.
Kampe, Christopher. 2019. "Seven Dimensions of a Feminist War Game: What We Can Learn from This War of Mine." In *Feminist War Games? Mechanisms of War, Feminist Values, and Interventional Games*, edited by Jon Saklofske, Alyssa Arbuckle, and Jon Bath, 132–149. London: Routledge.
Kapell, Matthew Wilhelm, and Andrew B. R. Elliott. 2013. *Playing with the Past: Digital Games and the Simulation of History*. New York: Bloomsbury Publishing USA.
Karalis, Magdalene. 2024. "Russia-Ukraine War through the Eyes of Social Media." *Georgetown Journal of International Affairs* (blog). 2 February 2024. https://gjia.georgetown.edu/2024/02/02/russia-ukraine-through-the-eyes-of-social-media/.
Karmakar, Tista. 2022. "The Anonymous and IT Army of Ukraine Claim to Hack LTE Routers with 88 Websites of the Russian Federation." The Tech Outlook. 01 July 2022. https://www.thetechoutlook.com/news/security/the-anonymous-and-it-army-of-ukraine-claim-to-hack-lte-routers-with-88-websites-of-the-russian-federation/.
Kim, Tae Wan, and Kevin Werbach. 2016. "More than Just a Game: Ethical Issues in Gamification." *Ethics and Information Technology* 18 (2): 157–173. https://doi.org/10.1007/s10676-016-9401-5.
Kirichenko, David. 2024. "Ukraine's IT Army now Aids Drone Strikes on Russian Oil Refineries." Euromaidan Press. https://euromaidanpress.com/2024/06/29/ukraines-it-army-now-aids-drone-strikes-on-russian-oil-refineries/#:~:text=Throughout%20the%20war%2C%20the%20IT,Russian%2Doccupied%20parts%20of%20Ukraine.
Lapienytė, Jurgita. 2022. "Wargames Take out Russian Websites." *Cybernews*, 17 March 2022, sec. Cyber war news. https://cybernews.com/cyber-war/wargames-take-out-russian-websites/.
Latour, Bruno. 2005. *Reassembling the Social – An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
Law, John, ed. 1986. *Power, Action, and Belief: A New Sociology of Knowledge?* Boston: Routledge & Kegan Paul.

Lemke, Florian, Konstantin Ehrhardt, and Olha Popelyshyn. 2021. "Support and Resistance of Public Officials Towards Current EGovernment Initiatives – A Case Study on Ukraine and Germany." *dms – der Moderne Staat – Zeitschrift für Public Policy, Recht und Management* 14 (1): 61–80. https://doi.org/10.3224/dms.v14i1.08.

Lenoir, Tim, and Luke Caldwell. 2018. *The Military-Entertainment Complex*. Cambridge, MA: Harvard University Press.

Lin-Greenberg, Erik, Reid B.C. Pauly, and Jacquelyn G. Schneider. 2022. "Wargaming for International Relations Research." *European Journal of International Relations* 28 (1): 83–109. https://doi.org/10.1177/13540661211064090.

Lorenzini, Veronica Ronnie. 2022. "Play for Ukraine, il gioco online per bloccare i siti dell'esercito russo." *Techprincess*, 16 March 2022, sec. Tech. https://techprincess.it/play-for-ukraine-gioco-online/.

Lucas, George. 2017. "State-Sponsored Hacktivism and the Rise of "Soft" War." In *Soft War: The Ethics of Unarmed Conflict*, edited by Michael Gross and Tamar Meisels, 77–88. Cambridge: Cambridge University Press.

McSorley, Kevin. 2019. "Playing in the End Times: Wargames, Resilience and the Art of Failure." In *War Games: Memory, Militarism and the Subject of Play*, edited by Philip Hammond and Holger Pötzsch, 37–52. London: Bloomsbury Publishing.

Mead, Corey. 2013. *War Play: Video Games and the Future of Armed Conflict*. Boston: Houghton Mifflin Harcourt.

Meier, Marie-Luise. 2022. ""War Never Changes." Gender Roles and the Transformative Potential for Role Reversal in Roleplay Games with Post-Apocalyptic Settings." *Gamevironments* 16:33–67. https://doi.org/10.48783/gameviron.v16i16.172.

Merrin, William. 2018. *Digital War: A Critical Introduction*. 1st ed. London: Routledge. https://doi.org/10.4324/9781315707624.

Mirrlees, Tanner, and Taha Ibaid. 2021. "The Virtual Killing of Muslims: Digital War Games, Islamophobia, and the Global War on Terror." *Islamophobia Studies Journal* 6 (1): 33–51. https://doi.org/10.13169/islastudj.6.1.0033.

Mulrine, Anna. 2011. "Unmanned Drone Attacks and Shape-Shifting Robots: War's Remote-Control Future." *Christian Science Monitor*, 22 October 2011. https://www.csmonitor.com/USA/Military/2011/1022/Unmanned-drone-attacks-and-shape-shifting-robots-War-s-remote-control-future.

Nast, Condé. 2022. "Play for Ukraine, il gioco online che blocca i siti dell'esercito russo." *Wired Italia*, 17 March 2022, sec. Security. https://www.wired.it/article/play-for-ukraine-gioco-online-attacchi-siti-esercito-russo/.

Nye, Joseph. 2004. *Soft Power: The Means to Success in World Politics*. New York: Public Affairs.

Nye, Joseph. 2021. "Soft Power: The Evolution of a Concept." *Journal of Political Power* 14 (1): 196–208. https://doi.org/10.1080/2158379X.2021.1879572.

playforukraine. (@playforukraine1). 2022a. "4 Days ago We Launched Playforukraine.life. 123k players performed 153 bln attacks." Twitter, 03 March, 5:45 pm. https://x.com/playforukraine1/status/1499425742962184192.

playforukraine. (@playforukraine1). 2022b. "Goodbye, smpbank. Stop Russian army! Russia is a terrorist! #StopPutinNOW #SaveUkraine." Twitter, 05 March, 12:26 pm. https://x.com/playforukraine1/status/1500070332807454721.

playforukraine. (@playforukraine1). 2022c. "Rosneft? Follow Russian warship please! Join our Game to overload Russian Websites! Help us to stop Russian Terrorism! #cancelrussia #StopRussia #StopPutinNOW." Twitter, 05 March, 4:45pm. https://x.com/playforukraine1/status/1500135379495751686.

playforukraine. (@playforukriane1). 2022d. "You Play Online - We Block Russian Websites: An Easy Way to help Ukraine Right Now." Twitter, 28 February, 12:04 pm. https://x.com/playforukraine1/status/1498252710105202692.

playforukraine. (@playforukraine1). 2022e. "Since Game Launch near 50 Resources Went Down from our Attacks, Including oaovoentorg.ru - the Biggest Provisioning Company of the Ministry of Defence of the Russian Federation." Twitter, 02 March, 5:02 pm. https://x.com/playforukraine1/status/1499052503236763651.

playforukraine. (@playforukraine1). 2022f. "Our "Play for Ukraine" initiative is verified by @CyberpoliceUA and supported by media. Join us!." Twitter, 28 February, 1:28 pm. https://x.com/playforukraine1/status/1498273795366293505.

playforukraine. (@playforukraine1). 2022g. "While @Cloudflare keeps blocking us, we are supported by those who care about freedom and democracy!" Twitter, 24 March, 2:38 pm. https://twitter.com/playforukraine1/status/1506988816078417935.

playforukraine.live. 2022. "How it works?. 03 July 2024." https://web.archive.org/web/20220302025014/https://playforukraine.live/.

Power, Marcus. 2007. "Digitized Virtuosity: Video War Games and Post-9/11 Cyber-Deterrence." *Security Dialogue* 38 (2): 271–288. https://doi.org/10.1177/0967010607078552.

Pugliese, Joseph. 2016. "Drone Casino Mimesis: Telewarfare and Civil Militarization." *Journal of Sociology* 52 (3): 500–521. https://doi.org/10.1177/1440783316655630.

Reddie, Andrew W., Bethany L. Goldblum, Kiran Lakkaraju, Jason Reinhardt, Michael Nacht, and Laura Epifanovskaya. 2018. "Next-Generation Wargames: Technology Enables New Research Designs, and More Data." *Science*, 21 December 2018.

Ronnie, Walker. 2022. "Play for Ukraine, the Online Game to Block Russian Army Sites." *World of Technology, Video Games & Digital Entertainment*, 16 March 2022. https://techgameworld.com/play-for-ukraine-the-online-game-to-block-russian-army-sites/.

Saber, Dima, and Nick Webber. 2017. "'This is our Call of Duty': Hegemony, History and Resistant Videogames in the Middle East." *Media, Culture & Society* 39 (1): 77–93. https://doi.org/10.1177/0163443716672297.

Schatzki, Theodore R. 2002. *The Site of the Social: A Philosophical Account of the Constitution of Social Life and Change*. University Park: The Pennsylvania State University Press. https://www.psupress.org/books/titles/0-271-02144-6.html.

Schijven, Marlies P., and Toshiko Kikkawa. 2022. "Games for Peace and Welfare." *Simulation & Gaming* 53 (3): 219–220. https://doi.org/10.1177/10468781221089058.

Schleiner, Anne-Marie. 2017. *The Player's Power to Change the Game: Ludic Mutation*. Amsterdam: Amsterdam University Press.

Shevchenko, Lev. 2022. "Україна допомагатиме Естонії створити свій аналог Дії." *LIGA.net*, 2 September 2022, sec. В Україні. https://tech.liga.net/ua/ukraine/novosti/ukraina-budet-pomogat-estonii-sozdat-svoy-analog-dii.

Shove, Elizabeth, Mika Pantzar, and Matt Watson. 2012. *The Dynamics of Social Practice: Everyday Life and How It Changes*. London: SAGE.

Sicart, Miguel. 2020. "Playing Software: The Role of the Ludic in the Software Society." *Information, Communication & Society* 23 (14): 2081–2095. https://doi.org/10.1080/1369118X.2020.1764078.

Soesanto, Stefan. 2022. "The IT Army of Ukraine: Structure, Tasking, and Eco-System." Application/pdf. Center for Security Studies (CSS), ETH Zurich. http://hdl.handle.net/20.500.11850/552293.

Stahl, Roger. 2004. "War Games: Citizenship and Play in Post-Industrial Militarism." PhD, The Pennsylvania State University. https://etda.libraries.psu.edu/files/final_submissions/5189.

Stahl, Roger. 2009. *Militainment, Inc.: War, Media, and Popular Culture*. 1st ed. New York: Routledge.

Stohl, Michael. 2006. "Cyber Terrorism: A Clear and Present Danger, the sum of all Fears, Breaking Point or Patriot Games?" *Crime, Law and Social Change* 46 (4–5): 223–238. https://doi.org/10.1007/s10611-007-9061-9.

Sullivan, Mark. 2022. "This Game Crowdsources Cyberattacks against Russian Websites." *Fast Company*, 18 March 2022. https://www.fastcompany.com/90732766/ddos-play-for-ukraine-russian-cyberattack.

Svyrydenko, Denys, and Wiktor Mozgin. 2022. "Hacktivism of the Anonymous Group as a Fighting Tool in the Context of Russia's War Against Ukraine." *Future Human Image* 17:39–46. https://doi.org/10.29202/fhi/17/6.

Vu, Anh V., Daniel R. Thomas, Ben Collier, Alice Hutchings, Richard Clayton, and Ross Anderson. 2022. "Getting Bored of Cyberwar: Exploring the Role of the Cybercrime Underground in the Russia-Ukraine Conflict." arXiv. http://arxiv.org/abs/2208.10629.