

Weaponizing Perception: The Psychological Impact of AI in the Cognitive Domain

How drones, data, and deepfakes are reshaping battlefield behavior and mental resilience.

Written By: Erick Benson

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Artificial intelligence (AI) is transforming the battlefield, not just by enhancing weapons or surveillance, but by fundamentally altering the psychological dimensions of warfare. Historically, psychological operations (PSYOP) were constrained by human limits: the speed at which information could be disseminated, processed, and acted upon. Today, this evolving fight is being defined as cognitive warfare, a battle for control over the cognitive domain. Cognitive warfare refers to the use of technologies, strategies, and messaging designed to influence how individuals think, feel, and make decisions, often without their awareness. The cognitive domain encompasses the mental processes of perception, reasoning, memory, and judgment. In essence, the human mind is now a battlefield. As AI is rapidly surpassing these cognitive constraints, creating an urgent need to understand its psychological impacts. As AI capabilities outpace our ability to comprehend them fully, it is imperative to examine how these technologies reshape the human mind in conflicts.

One clear area requiring deeper exploration, is the psychological stress induced by AI-enabled persistent surveillance and autonomous systems. For instance, drones and robot dogs aren't just reconnaissance or attack tools, they are powerful psychological weapons. The constant buzzing of drones overhead, as witnessed in the Ukraine-Russian conflict, imposes persistent psychological pressure, as seen in online videos from operators uploading the drone video, to social media posts taken from inside the trenches. Soldiers have reported heightened anxiety, paranoia, and impaired decision-making under the constant threat of surveillance or drone strikes, contributing to an unprecedented form of PTSD. This persistent stress is captured vividly in videos shared online, from drone operators posting footage, to social media clips recorded by soldiers themselves from within trenches. Notably, footage frequently shows soldiers panicking, dropping their weapons and desperately scrambling for cover as drones approach. In other clips, soldiers can be seen curling up defensively moments before drone detonation. Most alarming, some soldiers appear to entirely surrender psychologically, placing down their weapons and sitting motionless, passively allowing the drone to complete its mission. Such behaviors strongly align with the concept of the "panopticon effect," where constant surveillance fundamentally alters human behavior, eroding

psychological resilience. These observed psychological responses have quantifiable impacts on cognitive load, decision fatigue, and overall combat effectiveness, areas that urgently call for rigorous empirical studies to be conducted.

Additionally, the "uncanny valley" effect in robotic systems, particularly robot dogs or humanoid robots, warrants closer psychological scrutiny. Particularly armed robotic quadrupeds such as Boston Dynamics' Spot dogs, demands closer psychological assessment. Deployed on battlefields, these robotic dogs, especially when weaponized, introduce an element of fear and unpredictability, potentially resulting in significant psychological anguish among enemy combatants. These machines blur the line between familiar and science fiction, potentially triggering profound discomfort or outright terror. Soldiers encountering real-world versions of robotic entities, reminiscent of robots and terminators depicted in media over the past 40 years, may experience deep-seated anxieties or outright panic. The psychological toll of facing these sophisticated robotic adversaries could be severe, demanding rigorous preparation for our troops. This need for mental preparedness becomes particularly critical as we anticipate future conflicts involving technologically advanced opponents such as China, where robotic integration into combat scenarios is likely to become increasingly prevalent.

AI's role in cognitive warfare, crafting hyper-personalized disinformation campaigns further complicates this landscape. Leveraging sophisticated analytical tools from companies like Rhombus and Palantir, AI-driven predictive models systematically collect and analyze extensive data from diverse sources, ranging from government datasets to publicly accessible information, including digital footprints, social media interactions, browsing behaviors, creating psychological profiles, to craft precisely tailored propaganda. Such methods target and exploit individual vulnerabilities, anxieties, and cognitive biases, intensifying its psychological effectiveness. Moreover, the emergence of Agentic AI platforms facilitate the mass production and dissemination of highly adaptive disinformation and cyber operations through extensive bot farms, significantly escalating threats within the cognitive domain of warfare. The Cambridge Analytica scandal starkly illustrates AI's capacity for influencing behavior via microtargeted psychological manipulation. Yet, despite clear evidence of AI's potential impacts, research into how these precise microtargeting strategies directly affect troop morale, cognitive resilience, and overall combat readiness remains critically underdeveloped, representing an urgent area for future inquiry.

The advancement of deepfakes and AI-generated hyper-realistic visual and audio content poses a profound psychological threat. When soldiers encounter convincing yet entirely fabricated videos depicting their leaders surrendering or hear manipulated

communications providing incorrect operational details, the psychological consequences can be immediate and catastrophic. Such deceptive tactics can swiftly undermine trust, morale, and combat cohesion, potentially leading entire units into compromised positions based on falsified statements purportedly from command. This threat highlights an urgent need for experiments and field studies to precisely measure how exposure to deepfakes affects military units' trust in leadership, operational cohesion, decision-making accuracy, and overall psychological resilience.

Compounding this urgency is the growing use of AI-driven tools by adversaries on civilian populations. As highlighted by multiple researchers and policy experts, wearable technologies, such as meditation and sleep headbands, smart rings, and fitness watches, are already collecting brainwave activity, health metrics, and biometric data at scale. China is mass-producing these technologies and integrating them with social media data and biometric platforms to build comprehensive psychological profiles—on both civilians and potentially military personnel.

The danger is clear: this data can be weaponized. If adversaries gain access to such information on U.S. citizens or military personnel, they could engage in targeted cognitive warfare, manipulating mood, decision-making, and readiness long before a single shot is fired. This tactic could erode troop resilience and morale, undermining unit cohesion and battlefield performance before deployment even begins. The speed of AI development continues to outpace our understanding of its psychological and sociological effects—particularly in combat settings. As these systems become more capable of manipulating perception, behavior, and belief, our delay in studying their cognitive consequences leaves a dangerous gap. Without proactive research, we risk deploying tools that reshape thought, morale, and trust without grasping their long-term psychological toll.

To close this gap, future research must adopt a multidisciplinary approach; integrating psychological science, cognitive neuroscience, sociology, and military strategy. This includes field experiments and operational simulations that account for conditions shaped by biometric surveillance, sentiment manipulation, and AI-enabled deception. Ethical oversight must be rigorous but flexible, ensuring both participant protection and the development of countermeasures to mitigate these cognitive threats before they are fully weaponized.

Ultimately, AI's psychological impact is not a side effect, it's becoming the main arena of conflict. As adversaries pivot from physical dominance to influencing thought and behavior, the cognitive domain has emerged as the decisive front in modern warfare. Tools like autonomous drones, deepfakes, and behavioral profiling don't just support

operations, they precondition the outcomes. Understanding and defending against these threats is no longer optional. If we don't invest in decoding the psychological mechanisms AI exploits, we risk entering future wars with unmatched firepower but unshielded minds, outflanked not by strength, but by AI strategy. The battlefield may be physical, but victory will depend on who controls the mind.

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