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Final Essay: Ethical Concerns of Military AI

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# Ethical Ramifications of Military Application of Artificial Intelligence From Global Perspectives

## Introduction

Current popularized impact of military applications of Artificial Intelligence paints a grim picture of killer robots, with digital operators, making the autonomous decision to end human life. This has been a hotbed topic of ethical concern since the 1970’s. However, this topic has risen to greater prominence since 2013 with the reporting, and results, of multiple campaigns conducted across three theaters; where the United States began to dominate the race in UAV technology. The use of loitering munitions with computer assisted targeting became a hotbed issue across the globe. One point claiming the safety of soldiers, and the isolation of targets; while the other can push back at the misidentification of intent, and victim. Strikes are conducted at a remote distance detached from the reality on the ground. But even as gun-cam footage and strike videos were scoured off Youtube, the Convention on Conventional Weaponry began to understand the implication of the AI race, and the risks that loomed in the path of progress. Though scientists and activists begged for restraint in the development of weaponized AI, it seemed that globally, the world was already entrenched in a new arms race.

While automated targeting and target defeat might seem like the clear and present danger, military application of AI expanded its scope. Perhaps to arguably more dangerous fields. Military defense policy for the US reflects global sentiment, but ignores policy moves. This is because it has to plan not only for what has been termed “Information Dominance”, but for global competition amongst nation states; instead of the fight against asymmetrical extremist factions that have dominated domestic defense innovation and imagination for the past 20 years. The view has shifted towards a future conflict that will be against national actors, or their proxies. This means that national Defense policy is beginning to plan against potential conflict against China, Russia, or a country of near equal footing.

In a world where many Americans would prefer a shift away from defense spending, this strategic tact necessitates greater military investment. Because of American commitment to the Global War On Terror (GWOT) strategic investments have focused on Counter Insurgency operations (COIN) and not symmetrical conflict. Current simulated models put American forces at a severe disadvantage against nation states that have solely focused on becoming increasingly influential on the global stage (Pickrell, 2019).

This tense environment on the global stage, along with a long history of international competition, and rising tensions between nations, creates an environment where reactionary decision making may take ownership over cooler heads. There is strong agreement in the international community to the abhorrence of automated lethality in conflicts. Such multilateral commitment is essential to stem what may become a global misery equivalent to climate change (Boulanin & Lewis, 2023). But the fact is that any country that means to establish themselves as a global leader will, by necessity, require the development of many aspects of militarized AI. Some of which border methods that might render direct action ordnance irrelevant. What is definitive is that ethical concerns and governance must be included in the development of these applications to lessen global suffering, and calamity.

## Historical Pessi-dent

Other generations have had exponential shifts in how warfare was waged. Some of these previous innovations could be considered a magnitude shift in how conflict was fought. This would include the innovation of the rifle cartridge, followed by Richard Gatling’s invention of the crank operated rifle. There are a couple of interesting anecdotes about the story of the “Gatling Gun”. For one, Richard Gatling was originally a designer of farm equipment. He saw the massive number of casualties in the Civil War, and in his observations deduced that if he could limit the number of men that were needed on the battlefield, he would be able to save the lives of the countless boys that died in future conflicts. The “Gatling Gun” was such a jarring innovation, and so against current military strategy, that he found little to no market for it in the continental United States. Instead, he found an advocate in an English Cavalry officer, who utilized the Gatling Gun to great effect, to control indigenous populations in Africa. The Gatling Gun allowed a small detachment of soldiers to defend a fort against hundred of tribesmen, and thereby brought great suffering and death. The very thing that Gatling had hoped to avoid (Chivers, 2010).

During WWI there was another shift with the transformation, and weaponization, of the airplane. Now capable of firing machine guns, dropping ordnance, including chemical weapons, that brought horror and great suffering to trench warfare. Fast forward to WWII, the airplane was quintessential to military strategy, and global dominance. An Air Force Commander, General Curtis LeMay, published doctrine with a group called “The Bomber Mafia” outlining the possibility of reducing the use of carpet bombing, which causes untold harm against property and civilian populations, and instead utilizing a new stratagem called “surgical strike bombing”. This emphasized the importance of target selection, whereby a relatively few bombers would strike at specific sights of importance, thereby disrupting critical infrastructure in city centers and bring enemy capability to wage war to a grinding halt. This principle, and change in doctrine, was effective in the European theater, and likely prevented the loss of thousands of lives. But in shifting to the Pacific Theater, and faced with lateral wind gusts, and complications that forbade strategic bombing strikes, LeMay and the bomber mafia dropped their ideals, and picked up a new tool more suited to their goals: Napalm. In a subsequent bombing raid of Tokyo, LeMay burnt down 16 square miles of the Tokyo city center. Killing over 100,000 people in an instant. Potentially more than the atomic bombing of Hiroshima, and he wasn’t even warmed up yet (Gladwell, 2020).

After 1977 the United Nations added to the Geneva Convention, and the Hague Code of Conduct by drafting multilateral treaties banning the creation and use of Chemical, Biological, and Radiological weaponry. These include the Chemical Weapons Convention, the Biological Weapons Convention, the Treaty on the Non-Proliferation of nuclear weapons, and others (Disarmament, 2023). Similar laws ban the use of cluster munitions, and area denial weaponry to include land mines. But just like in the past, regardless of the intent of the legislation, these laws and agreements become somewhat toothless. The largest nations in the world, those with the largest militaries, and scopes of global responsibility and influence, refuse to sign them. This is hardly surprising as they also own some of the largest stockages of these various types of ordinances. Some of which are being utilized to this day in the conflict in Ukraine (Watch, 2023). In the age of artificial intelligence, we see the birth of weapons, and methodologies that potentially render this sort of munitions superfluous in the larger scale. There are numerous arguments for why it is quintessential for a given country to develop them. But as the world looks on with worry, and attempts to legislate, what is the point if the largest militaries in the world refuse to abide by internationally accepted law?

## Gripping a Wolf by the Ears: The Inability to Stop

IN 1984 the American Central Intelligence Agency launched several experiments surrounding the phenomenon of Human Paranormal Capabilities including extra sensory perception, psychic intuition, and x-ray vision. They did this not because of any breakthroughs in the field, but because China was conducting experiments in all these fields (Agency, 1984). This is not the only point in history that this has happened.

To be competitive on the national stage, key influencers in regions have a monetary, geo-political, and dogmatic reason to continue studies that mitigate, stymie and thwart the advancement of their competitors. This is as true in tactical and strategic practices as it is in investigation of the supernatural. When the Nazis began trying to discern the power of historical relics, the US had to start looking for the threat. Not because they believed that the Spear of Longinus was going to turn the tide of WWII, but because, at some level, the Nazi’s believed it might. Foreign powers then had to meet the threat and determine the plausibility. Even if 19 people in a room say its crazy, because a foreign actor holds faith in it, scientific study and defense practice indicates that the only sensible call is to consult the 20th person. “Let’s make sure”.

Historically, hubris has caused the deaths of thousands of people when tactical theory is ignored out of the need to make a countermove. In the early 20th century, British cavalrymen attempted to thwart trench warfare, and the advent of the machine gun, with historically successful cavalry charges. This brought incredible disaster and loss of life. Horseflesh, bravery, and bravado bore no threat to well entrenched automatic mayhem.

Similarly with the advent of Artificial intelligence in defense applications do national competitors have to stay vigilant. Numerous organizations, including international governments, have called for the limitation on the development of automated weapons systems. China has lodged joint policy guides with the League of Arab States to call for a prevention of the use of militarized AI. This is one of several moves that seems to highlight Chinese ambition to become a global authority in AI policy. The paper, submitted to the Convention on Conventional Weapons in 2021 outlines that “Efforts to regulate military applications of AI to forestall and manage potential risks will help promote mutual trust among countries, safeguard global strategic stability…” But Ironically they do this while being one of the global leaders in military AI research, spending millions a year in its development (Zhao, 2021). While their policy choice, and advocacy, calls for a global cooling of weaponized AI, their personal commitment is one of preventing deployment, but not the research of military AI. This follows similar, weak commitments by other global leaders such as Russia, the UK, and the United States. Do not research AI, says the globally influential, or I will rally my AI against you.

The US Role, globally, requires AI Development. If we are talking about a wargame, then the US is playing multiple boards at once. As the adversary clocks up speed, the US must anticipate, rather than react, to stay globally relevant. But not everyone is playing the same game.

“Russia is playing CHESS, China and Korea are playing GO… Zealots are playing CHECKERS, and Radicals/Terrorists (are playing) TIC-TAC-TOE). Only AI, with its “speed-freak” never sleep analytics could allow us to compete simultaneously (Short, 2023).”

Beyond US Ambition, if any global power continues to develop militarized AI then it is a defensive and strategic necessity for all global powers to continue to innovate technologies to counter their global competitors. China currently is building barrier Islands in the Asiatic to exert greater influence and control in the region. They likewise have very vocally advertised that they will continue to innovate in AI, even as they attempt to become a global head of AI policy. Much like the depressing policy of mutually assured destruction, we seem to only be able to conceptualize saving the world from a threat to half of it by holding the other half hostage.

## War Always Changes

There are numerous instances of currently deployed technologies that are suggestive of the militarized capability of artificial intelligence. Drone use has long been understood as one of the first applications of computer technologies to deliver ordnance to a target. With the capability to loiter above a battlespace, and deliver surgical application of lethality onto target, drones might be considered a more humane and surgical application of force than the previous approaches of General LeMay. But this still expresses the desired intervention of a human interrupter to the targeting cycle that makes the decision to deliver force. Israel is another high dollar global investor on autonomous weapon systems. They have enabled drone technologies to be incorporated with anti-air defense radar seeking munitions that allow for patrolling drones to automatically release ordnance to seek ground targets when they detect radar pings from suspected air defense sights. This is a direct example of what governments are talking about when discussing automated lethality. We also see drones utilizing targeting and swarming technologies which enable a large body of drones to react in concert to air defense so that they can deliver their payload against pre-programmed targets. This is technology that is currently being utilized in Ukraine to primarily target cities, civilian populaces, and critical infrastructure to increase human suffering.

It is the other applications that seem to be driving the global conversation to continue to develop and justify further research. Just like the fortune 500, the US Military is already attempting to apply solutions to logistics analysis, with applications in supply line optimization, and improved disaster relief response. Artificial intelligence is also utilized in the analysis of images and video within a battle space to not only locate targets, but to also determine where undischarged mine fields lie to assist in humanitarian effort. The same technology that is used to locate high value targets and threats is also utilized to locate “search and rescue targets” from lost hikers, to downed aircrews in hostile areas. One of the most fascinating realities of military research and development is that while we attempt to find better ways to engage in conflict, the scientific run off fuels progress in any number of sectors. But the inverse also seems to be true.

Sean Ekins is the CEO of Collaborations Pharmaceuticals (COLLAB). Collaborations Pharma is a firm in Raleigh, North Carolina that provides research and data expertise to multiple pharma enterprises. In 2022, while engaged in a research project, COLLAB were utilizing machine learning to map molecules and generate anti-toxin compounds for use in Pharma research (Sweet, 2023). Their optimization algorithm is a type of regression analysis that projects what the most likely path is to attain a desired, and programmed, result. More specifically, it is likely that their algorithm was based on similar Markov Chain Monti Carlo (MCMC) algorithms that progressively test a result for effect and subsequently utilize unsupervised learning to progress toward the best possible solution. In a moment of curiosity, Mr. Ekins, and an engineer, decided to see what the outcome was of utilizing their base algorithm to depict the inverse compounds. Compounds that, instead, would move towards greater toxicity. Changing that parameter allowed their algorithm to predict compounds; including existing and future nerve agents of incredible toxic properties. They used mathematics to generate some of the most conceptually deadly chemical weapons on the planet.

This is still in the realm of physical deployments of lethal payloads, weaponry. But the fact is this is a digital world, and warfare has transformed to engage in competition within the cyber domain. One of the key US Policies that will lead defense into the next century is the critical need for “Information Dominance” which has been highlighted in defense strategy through 2030. This is the need to not only the need to obtain greater information resources, than other global actors, but to be able to innovate at a level that is above their reach.

This involves an investment in current infrastructure, research and development, and processes. Additionally, it involves the understanding that the future generations of data and information experts will begin to play key roles in conflict. This is because, in the future of cyber conflict, there are methods to thwart the enemy ability to operate that extends beyond physical means. This includes the conceptual domain of future intelligent-financial conflict. Language based processing algorithms have already developed the ability to invest and recommend stocks. In broader applications this could involve “shorting” stocks, buying out or selling assets, and reading future trends in markets; as well as the ability to manipulate them. Fast forward to an “Nth” generation of Artificial Intelligence, and this suggests an ability to manipulate international markets that might prevent a country from engaging in global commerce. Perhaps disrupting a country’s credit and trust, and impact an entire populace’s ability to utilize currency and engage in business.

Sanctions, in regards to these policies, would be akin to “direct ordinance”. It is a mechanism, law, or policy that prevents specific actions from happening to prevent a hostile actor from having the ability to operate financially. Sanctions have dropped the Ruble to an 18-month low due to Russia’s involvement in the Ukraine war. But in the same breath, conflict could involve an army of digital investment minds that communally optimize a solution to disrupt a foreign power’s finances. How fast might that turn a developing country into a long soup-line? What is the ethical drive to stop international competition / conflict from directly targeting a civilian populace when that is clearly the aim of Russia’s campaign in Ukraine?

## Developed in Isolation

The very nature of military AI has the potential to create targeting bias. As most AI models are trained on a broader, more open system, it is envisioned that with enough training iterations they might become representative of a broader trend / population base. It is conceptually correct that an AI trained on the open market connects to input from a wide enough variety of sources. Theoretically this makes bias towards one outlook less likely. The size of the population / training set that Open AI systems have access to make it less likely than utilize a sample set, which may become biased due to collection. But in the case of currently marketed AI solutions that ability to learn has hampered AI’s ability to discern correct information. Language modeling algorithms have allowed AI to draw incorrect inference, but also in some cases commit slander against public figures. The Washington Post cites an AI generated article, published to the internet, that insinuated that a source, a known Conservative source for Fox News, was undergoing sexual harassment hearings, which were simply not true.

Other models generate racial and gender bias based on attributes / variables of profile and transaction measurements. Many data models generate a seeming propensity toward bias. This is particularly true in risk-based algorithms. For instance, zip codes; certain zip codes within the continental United States bear a heavier interest rate based on the associated risk of providing a loan due to higher rates of default. In some of those cases, this means that it is harder, and more expensive for people within that community to get a loan. If that is a historically minority neighborhood, then it equates to a reality of racism even if that was not the original intent.

Returning to military systems, by design they must be programmed, and trained in a vacuum. Military systems operate on a global selectively permeable intranet that prevents the global populace from accessing military information. They utilize a robust system of ID verification to either single, double, or triple verify a user’s information prior to allowing access. Part of this strays beyond the security, and into the practical. A military training exercise might utilize an AI domestic populace to determine crowd reactions to events within the exercise, or military application of propaganda and deception. If this model were Open Access, in the way that traditional algorithms operated, then it would essentially have knowledge of a guerilla war being fought in the United States. It might be able to act and recommend action; or even just poke people on Facebook. AI cannot discern truth from fiction. It spots word associations and starts building additional associations. Nor can it intuit a person’s intent. Merely probability of words existing as likely pairs. What is the lasting implication of an AI model that is built with a strategic purpose to be used for deception, or to have the need to react to only conflict? And what happens when that AI model needs to create input, and decisions? Does it utilize empathetical reason, and kindness, or has it been dogmatized? Does it create bias?

## Constant Evaluation from Human Actors

Industrialized countries that thrive in the information age cannot remain globally competitive without innovating, and assuming, a role for AI in future systems. But AI systems are fraught with risk and problems. AI cannot assume intent with accuracy. They are tools that evaluate likely probabilities. Data professionals in the future will not be programmers of AI, they will be ethical wranglers. Much akin to a servant, whispering to Roman generals, that they are mortal when coming face to face with the emperor of a dynasty, data professionals will, in the future, be charged with the regulation of how AI machines learn and influence society. It is imperative to introduce these people into the planning of AI systems, and not be reactionary. AI, and intelligent systems, are as good or as bad as people and governments apply them. Visibility, honesty, and compassion will become prime currencies to staving off human disaster. In 1983 Satanislov Petrov, a lieutenant colonel in soviet air defense, stopped the world from bombing itself into oblivion by interjecting common sense and human understanding into a situation where fear and tension would have necessitated a developed nuclear power from unleashing an apocalyptic event. The story is too interesting to do justice here. However, LTC Petrov prevented the end of humanity as we know it by locking himself in a room, with the doomsday key, and asking, “Are we sure?”. This is the potential future of AI. We can litigate, apply policy, but in the end, it will come down to human actors to enliven the better angels of our nature.

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