THE NEW DIMENSION OF THE WARS OF OUR AGE: TAKING THE PLACE OF MANPOWER OF ARTIFICIAL INTELLIGENCE

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Abstract

Wars constitute the vast majority of human history. When and how the prehistoric wars began were the subject of discussion among historians and anthropologists. Social roles were not evident in hunter-gatherer societies except for age and gender differences. With the emergence of agriculture, it is thought that societies are attacking each other's villages especially in times of scarcity these attacks were becoming increasingly organized. Over time, arrows, swords and armor were made. With the use of gunpowder in firearms, the wars became more organized, and the wars we called conventional wars arose. Conventional wars, especially with the industrial revolution, increased their importance. The struggle for power and interest of humanity did not end; on the contrary it has become increasingly intensified and increased and in this case it has laid the ground for asymmetric wars. Terrorism, CBRN attacks, and proxy wars have become the terms we hear more and more every day. Apart from all these struggles, technology has reached such a point that it has begun to be seen in many dimensions of war. In this article, the aim is to draw attention to the use of artificial intelligence in today's wars and the points that are expected to be used in the future.

Keywords: *War; Threat; Technology; Artificial Intelligence*

Introduction

Throughout history, there has been a constant struggle between groups, villages, nations and states for the sharing of limited resources, and this struggle is still ongoing, especially for the use of energy resources around the world. It would not be wrong to call this ongoing struggle as endless war. In the previous periods, this struggle started with simple combat vehicles such as swords, arrows, shield spears and was replaced by war vehicles such as cannons, rifles and tanks. Conventional warfare was observed especially in the First and Second World Wars. During the Cold War, different means of struggle developed according to the priority and size of the threat, and in time, the concept of artificial intelligence emerged

by developing technology. Although artificial intelligence is used in various fields today, it is aimed to give this capability especially to military operations. In this way, it is predicted that there will be less people in the field, there will be more robots that communicate directly with the satellite and each other, also these robots are foreseen to have the ability to reason in the future in order to enable communication among themselves.

1.Artificial intelligence

Although what intelligence defines and which cerebral activities encompasses is a subject that has been discussed for many years, there is a common understanding by the experts that it is a talent that can be developed and that it is based on biological processes due to its connection with the brain. Although there is no agreed definition, intelligence primarily refers to the ability to comprehend the relationship between concepts and objects, to think abstractly, to analyze, to adapt, to solve problems, to reason, and to learn from experience. Accordingly, the stages of learning, analysis of what is learned and being able to produce any output at the end of the analysis are indicative of intelligence (Dülger, 2018).

In general, cognitive activities such as comprehension, problem solving and planning are defined as the capacity of cognitive activities (Baştanlar, 2018).

"There are three major events in history. The first of these is the formation of the universe. The second is the beginning of life. The third is the emergence of artificial intelligence. In his interview with the BBC, Edward Fredkin, a MIT Computer Science laboratory administrator, used the above statements.

2.History of artificial intelligence

The developments that have become the cornerstone of the development history of artificial intelligence are as follows (Mijwel, 2018):

1) Known universally as the father of modern computers, Alan Turning published a paper describing the Turing Test in 1950, also known as a game of imitation, testing whether a machine can influence a person to believe in himself or herself.
2) Computer scientist John McCarthy produced the term "artificial intelligence" at a conference at the University of Dartmouth in 1956. As a result, the US government gave McCarthy and other scientist Marvin Minsky financial resources to develop artificial intelligence to strengthen their position in the Cold War with Russia. Efforts to use artificial intelligence to understand the patterns of Russian language translate Russian documents more quickly.
3) Deep Blue, one of IBM's supercomputers, surprised world by defeating chess champion Garry Kasparov in 1997. Deep Blue was able to analyze 200 million potential positions per second.
4) The invention of driverless vehicles.
5) Development of drones that recognize each other.

3.Deep learning

Data scientists in industry and academic environments use GPUs in machine learning to achieve ground-breaking improvements in a variety of applications, including image classification, video analysis, speech recognition and the natural language learning process. In particular, the use of advanced, multi-level deep neural networks to create systems capable of detecting large amounts of tagged training data can be described as Deep Learning (Toranoğlu, 2018). Deep learning activities and usage areas are as follows:

1) Face recognition systems
2) Plate recognition systems

3) Fingerprint readers
4) Iris readers
5) Voice recognition systems
6) Driverless cars
7) Spam detection
8) Drone technology.

4. Internet of things (IoT)

Thanks to developing technologies, billions of people have been able to connect to the internet with computers or portable mobile devices. The major step expected after this step is that the interconnected computers exchange information with the interconnected objects. From cars to books, from electrical appliances to food, from refrigerators to kettles, from smart buildings to shoes, the connection of all things / objects you can think of will be an improvement in the future. This is the stage that we can define as the Internet of Things. Since it is a developing concept and practice, different definitions have been made so far. The Digital Agenda, published by the European Union, said, "It is a developing technology and market that enables objects and applications to communicate among themselves, produce data, and share this data. This structure is defined as the ecosystem of smart applications and services that make people's lives easier and raise their living standards ". The European Technology Platform defines IoT as a common network of things/objects that can be physical and virtual, but also have pre-defined functions and work in intelligent environments, and this network enters into information exchange with other networks and users (Turak, 2015).

5.The use of unmanned aerial vehicles regarding artificial intelligence

The fourth generation war marks a period in which the monopoly of victory came from powerful armies and the weak sides began to believe that they could win the war. Although terms such as guerrilla warfare and irregular warfare are used, the term that best describes this strategy is "asymmetric warfare.. The fourth generation war put an end to the idea that both of the fighting sides should be regular armies. In addition, the asymmetric war has abolished the premise that powerful armies will always be the victors of the war. In this type of struggle, it is seen that the weak side uses terrorism as a means and loses its legitimacy. Asymmetric approach; is explained by the use of methods, weapons and technologies that are unexpected, unavoidable or not normally preferred to overcome the enormous power of the superior by exploiting the weaknesses of the superior (Asimetriksavaslar.wordpress.com, 2011). In this context, unmanned aerial vehicles have been developed to combat terrorism to be used in various parts of the world.

The importance given to UAVs in the fight against terrorism has further increased due to its role in detecting bombs buried or trapped on roads and roadsides. Thanks to this ability in Afghanistan, the lives of many soldiers seem to be protected. It is also seen that the relocation of land units and the travel of military vehicle convoys in both Iraq and Afghanistan are partially conditional on UAV support("Center for Security Studies (CSS)," 2010).

The use of UAVs in Iraq has made significant contributions to reducing American losses. As of 2005, the most casualties of the Iraqi coalition forces were mostly homemade, bomb explosives. In the fight against such attacks, UAVs reconnaissance and surveillance activities and intelligence gathered reduced the incidents of such attacks and reduced losses by 85% (Duncan, 2012).

When we look at the application, it is seen that artificial intelligence technology used in UAVs are the areas that need to be developed, especially as a result of the operations

carried out by the US military, civilian casualties have emerged and efforts to develop intelligent systems have been started to prevent this.

6. Predictions for the use of artificial intelligence in combat field

The rapid emergence of the Internet of Things revealed two technological arguments, machine intelligence and network communication. When people use their intelligence correctly, they can achieve more effective and more productive tasks. This may apply equally to new uses that are planned to have artificial intelligence predicted to take part in future battles. Robots can better serve human warriors when they manage to coordinate intelligence and actions among themselves. We call this the Internet of Battle Things (IoBT). In some ways, the IoBT is already becoming a reality, but is expected to take part intensely in battles 20-30 years from now (George, 2015). It is likely that the battlefield of the future will be intensely filled with such things. Some of these things (IoBT) are thought to be intelligent and some are objects that do only what is expected of them without a certain intelligence. In this sense, they can perform a wide range of tasks: perceive each other and human fighters, communicate, act and cooperate, dress like human fighters, selectively gather and process information, act as an intermediary to support announcement, perform coordinated defensive actions and will include the emergence of various effects. They are expected to be able to collaborate, communicate, coordinate, negotiate and plan and execute jointly. In other words, they will become the Internet of War Things (Kott, Swami, & West, 2016).

However, in order to realize all these capabilities, many important challenges will have to be overcome. As an example of such a challenge, communication between things will need to be fast, flexible and adaptable to changing situations and military tasks. This will involve organizing and managing a large number of complex equations as well as a large number of dynamic entities to achieve the objectives. This adaptation should be carried out in an almost completely autonomous way, without the need for support and maintenance services, avoiding the overburden of human fighters, managing and reorganizing networks (Kott, David, & Wang, 2015). In 2004, the American DARPA (Defense Advanced Research Projects Agency) launched a program for unmanned land vehicles. Although the first vehicles were slow to move, they were largely used without accidents. A short time later, the driver-free automobiles around the world could be used effectively. These vehicles, which are produced in the future, are expected to carry various loads for the needs of the soldiers in combat environment. In this way, it is foreseen to minimize the loss of life (Future of Life Institute 2015).

Developed by Boston Dynamics, robots can instantly identify obstacles that can come in front of them, allowing them to jump over them. These robots, which can carry a small amount of load for now, can move quickly. These robots, which can react quickly and accurately in the battles of the future, are to some degree a candidate to replace people (Brian, 2016).

Human warriors under extreme cognitive and physical stress may be confronted with the enormous complexity of the IoBT and the information it will produce. In addition to the ever-changing mission, IoBT may have to help people in understanding this vast, complex, confusing and potentially deceptive ocean of knowledge, taking into account the social, cognitive and physical needs of people (Kranz, Holleis, & Albrecht, 2010).

The increasing need and the competitive environment created by companies capable of producing such technologies point out that artificial intelligence will take more place in the battles of the future.

7.Challenges of Artificial Intelligence Technology

As artificial intelligence technology develops, it is considered that competition will be inevitable among companies producing this technology, as it will increase its use in military and commercial fields. However, it is obvious that the companies that will realize the production will need state support for high cost projects. Support for projects that are costly and the likelihood that these projects will fail to meet the needs may adversely affect the budget of states (Gigerenzer, 1999).

On the other hand, it is considered that engineers employed in these technologies need to develop their expertise in software and hardware according to the conditions of the time. In order to meet this need, universities open robotic coding, mechatronics and similar departments and train students. However, it is thought that the number of students raised in these departments is limited. There is a need to train qualified and qualified students from such departments.

Artificial intelligence technologies are needed at least in the civilian field as well as in the military field. If the technologies produced in the military field fail and they cannot sell the products they produce, they may face economic risks. In this case, these investor companies are directed to the civilian market where the probability of not selling products is low and the number of customers is higher. With the inclination to the civilian market, investment in military technologies involving artificial intelligence may be reduced. In the table, the artificial intelligence technology that can be used in the military field falls behind the artificial intelligence technology that can be used in civilian areas (Industrial Research Institute (2016).

Another danger that is likely to be faced by investor companies is the danger that innocent people are harmed by autonomous robots that contain such artificial intelligence, as artificial intelligence is used in the military field. It is not clear what kind of legal legislation will be used in such cases. This may impose some restrictions on the use of artificial intelligence in the military field. For this reason, companies may prefer to stay away from the military (Human Rights Watch 2013).

Also, the use of drone technology in attacks by terrorists in various parts of the world should take into account the fact that terrorists can acquire and use other technologies in the opposite direction.

Evaluation and conclusion

It is recognized by many authorities that today's armies do not lose their conventional capabilities but are prepared for the asymmetric wars that have become the reality of the day. Although each period has different paradigms, paradigms of our age bring greater responsibilities when compared with the past. Now the number of variables in combat areas is increasing, it becomes difficult to make decisions and the effects of the decisions are great.

As in all other fields of technology, it has a significant effect on military fields. States and their armies that cannot keep up with the dizzying speed of technology may experience more casualties in the battlefield of the future, and may face difficult challenges in making decisions. In this sense, artificial intelligence is an important reality in the wars of the future. It should be taken into consideration that the states that can effectively incorporate artificial intelligence into their armies in the battles of the future will be ahead of the other states.

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