**Paragraph II A**

The second field in which artificial intelligence plays an important role is military. To begin with, artificial intelligence has many valuable applications in military systems. Chiefly, cyber systems can be intruded, manipulated, and aborted by malicious people. Because it is impossible for people to identify and protect themselves from all cyber attacks, some advanced cyber defense systems which provide detection and prevention are needed. There are many artificial intelligence methods that can be utilized for cyber security system. Dilek, Çakır and Aydın (2015) claim that neural network algorithms that replicate human brain is the most famous method of artificial intelligence. The algorithm is mostly used for solution of prediction and classification problems, spam filtering systems, and detection of Zombie PC. Intrusion Detection Systems (IDS) observe the traffic of networks and systems to catch spiteful activities and IDS that uses neural network accelerates the revealing of denial of service (DoS) attacks about nearly 21 times (p. 25-26). As clearly seen, artificial intelligent is an important building block in cyber security when it comes to preventing computational attacks in military. Another way to combat cyber attacks is intelligent agents.

Like most antivirus programs, intelligent agents via communication inform each other about the most recent updates. According to Dilek et al. (2015), A multi-agent system(MWCDM) designed for detecting worm type viruses, even at the peak worm attack conditions, can spot viruses at the correct time and prevent router malfunction and misusage of network bandwidth (p. 26). These worms can cause important military or political information to be leaked; however, with the MWCDM, it is highly possible to prevent these attacks. In addition, artificial immune system applications (AIS) is another development of AI to prevent data leaking. It works like a biological immune system. As Dilek et al (2015) states, like an immune system which in order to resist pathogens make antibodies, AIS also uses the same method to prevent leaking or detect spam mails which are why AIS is key to cyber security. For example, Sirisanyalak and Sornil developed a system for mail spam detection using AIS and it was observed that the system has approximately 1% false positive and 2% false negative rate(p.28). Moreover, artificial intelligence is used not only on the virtual platforms but also on the shooting war fields. Artificial intelligence can analyze the environments faster than people and produce more feasible solutions. For instance, Akgül (n.d.) states that Pilot’s Associate Project (PAP) is developed for fighter pilots that do not have the co-pilot to assist and offer expert opinion as “phantom flight crew”. Systems like PAP should be constituted by taking into consideration mainly four collective professional systems: “a situation assessment manager”, “a tactical-planning manager”, “a mission-planning manager”, and “a system-status manager” (p. 266). Additionally, again Akgül (n.d.) claims that the pilot has to apply his/her decisions immediately and he/she does not have any cabin crew, hence PAP has extra properties that allows the pilot to perform that process using some artificial intelligence techniques such as speech recognition, and natural-language understanding. Artificial intelligence is also practiced for naval battle management to generate real-time solutions for complicated and variational warfare situations and to allow the operators to control all systems on an interface uses speech and pattern recognition. They can be itemized which battle-management functions should be assumed as base statements functions implemented precisely: “force requirements”, “capabilities assessment”, “campaign simulation”, “operation planning”, and “strategy assessment” (p. 266). All these functions together make it possible to consider entire battle conditions and bring out adequate responses within seconds. In summary, artificial intelligence has a profound impact in cyber security systems to detect and prevent attacks; likewise, AI helps creation of autonomous weapon systems.

Kadir Emre Oto

150140032