
Integrating Artificial Intelligence in Information Warfare

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ABSTRACT

Little advancement in science and technology offer as much promise for humanity's future as the collection of computer science-enabled skills referred to as artificial intelligence (AI). AI has the potential to improve the health and well-being of people, communities, and nations, as well as to help in the achievement of the United Nations' Sustainable Development Goals (SDGs) agenda for 2030. However, like with previous breakthrough breakthroughs, AI applications have the potential to undermine international peace and security, particularly when integrated into the tools and systems of state military. In recognition of this, UN Secretary-General António Guterres' disarmament agenda, *Securing Our Common Future*, emphasizes the importance for UN member states to gain a better understanding of the nature and implications of emerging technologies with potential military applications, as well as the importance of maintaining human control over weapon systems. He underlines the growing importance of conversation between governments, civic society, and the commercial

sector as a supplement to current intergovernmental mechanisms. This is especially true for AI, which, as an enabling technology, is expected to be incorporated into a wide range of military applications yet is now being researched primarily for non-military, predominantly civilian, uses. Nothing has been accomplished from the perspective of a developed country such as Pakistan. If data's use as a foundation for reporting and storytelling grows, it is critical to find responses to concerns about the use or misuse of data, the skills needed to do so, data journalism platforms and instruments, and potential newsroom changes. This research aims to answer the concerns from Pakistan's perspective. Additionally, it addresses the intellectual turns that Big Data and data journalism take in collecting, processing, explaining, interpreting, and representing reality.

Keywords: Robots; Big Data; Digital Media; Fifth Generation Warfare; Bots, Investigation.

1. INTRODUCTION

Since the conclusion of World War II, the character of war has changed dramatically. Battle boundaries have grown more blurred; an assault might come from terrorists dressed as civilians, from drones that are imperceptible to the naked eye, or from ballistic missiles fired 500 miles away. To account for the increasing lethality of conflict, maintaining an active duty army requires a significant expenditure. The cost of enlisting a soldier is \$15,000; the annual cost of treating one wounded US soldier is around \$2 million (Bilmes, 2014). Our objective is to explore if it is feasible to lower these human expenses by deploying computational agents and artificial intelligence (AI).

Robots capable of comprehending their environment and coping with novelty in an open world may be a realistic answer. AI will reign supreme in the next great conflict! The winner will be determined by robots that are faster, stronger, and more precise. However, such battles may be unavoidably and unprecedentedly destructive, maybe to the point of global technological catastrophe. Such powerful technology, however, should not fall into the hands of the immoral or evil.

Since World War II, robots (or other types of intelligent agents) have been used in combat. Numerous early robots (such as the US's 'Aphrodite' drones or the Soviet Union's tele-tanks) were either useless or limited to specialized missions. The use of robots in military operations began in the 1990s, when the Central Intelligence Agency began using the MQB-1 Predator drone (CIA). Rather of commanding drones carefully through close-up radio signals, drones "may be commanded remotely from any command center to fill intelligence gaps" (Gotera, 2003). Although

significant progress has been made in making robots intelligent, autonomous robots continue to "lack the flexibility to respond correctly in unexpected circumstances" (Nitsch, 2013). If autonomous robots are utilized in the battlefield, troops' duties will increase, not decrease. Soldiers will be expected to undertake routine military activities and to make use of robotic assets as required by the mission (Barnes et al., 2009).

According to studies, adding a second robotic duty to a soldier's inventory degrades their effectiveness in the battlefield. Chen and Joyner (Chen et al., 2009) performed a simulated experiment to determine if gunners could maintain local security while operating a semi-autonomous unmanned ground vehicle (UGV). According to the findings, "a gunner's target identification performance dropped dramatically when he or she was required to monitor, control, or tele-operate a UGV simultaneously with the gunnery task" (Barnes et al., 2009). The researchers assessed participants' abilities to detect equipment and individuals while driving an unmanned ground vehicle. The researchers conducted their studies on a 1/35 size model of an Iraqi metropolis. Similarly, the findings suggested that "adding an extra semiautonomous robot did not provide any benefit to participants." It exacerbated their issues in certain cases".

These kind of research demonstrate that context awareness (in the military, referred to as situational awareness —SA—) is critical for intelligent computational entities. Contextualizing an agent, on the other hand, is significantly more difficult than automating a manual or repetitive operation. One of the most difficult aspects of building validated and verified SA is identifying unknown things. Frequently, military operatives detected an improvised explosive device (or other

form of risk) only on the basis of a visual inspection. Operators depend on their prior experiences to detect tiny indicators such as uneven soil texture or the absence of a vehicle. If an agent can aid troops in recognizing risks using contextual data in a similar manner, robotic agents will be significantly more successful on the battlefield. We give soldier factors believed to be conflict contextual factors, including paralinguistic, demographic, visual, and physiological factors.

1.1 Artificial Intelligence Trends in Media

In Latin, the term 'data' means 'giving' in the context of truth. A definition of anything that can be registered, examined, and remembered is referred to. It is possible to count something countable as details. Anything processed by a machine is knowledge. In a general sense, every set of numbers collected on a spreadsheet is 'information.' If it is massive in length, large in velocity, diverse in Scope, and reflects veracity, a data collection will be known as 'big data.' There are fresh frontiers of possibilities to grasp, evaluate, perceive, and reflect the truth at the core of the four Vs. Big data is more about discovering a trend in the course of behavior, challenges, incidents, and other societal structures at its heart. It's about seeking ties, relations with the individuals around us, and connections with people's conduct and effects. It is a reality regarding the actions of people regardless of their views. It's about the behavior of clients, workers, and opportunities for a new venture. Big data can come from items such as mobile phone location data or credit card punch and things people write on Facebook, check on Google, or update on Twitter. So, it's gradually more about people's actual actions. Scientists may say an incredible lot about an individual by examining the results. They

will tell if the person can pay back bank loans, get some injury, or participate in illegal behavior. They can do this because their social history primarily determines their feelings, attitudes, and behavior. Suppose one element of the actions of a person is known. In that case, the others may be expected by observing and contrasting the participant in their social contacts to the individuals. And in the surrounding social fabric, individuals are so enmeshed that it defines the types of actions they believe are natural and what habits they can absorb from each other. Big data informs us of the ties that cause these incidents. Big data offers us the ability to learn how these human and computer processes function and reliable. Our forms of life and communicating, making choices, and experiencing truth are updated with the advent of information and communication technology. By incorporating a quantitative layer to it, the fundamental element of life is altered, and big data is more about seeing and knowing interactions inside and between pieces of data. It involves utilizing data to create insightful insights into challenges, incidents, and the course of action. The way we perceive and organize culture has been changed. From industry and science to healthcare, economy, schooling, finance, arts, and every part of the culture, the field of big data shakes things up. There is a revolution in the dynamics of companies, the economy, and culture. Big data is always chaotic, ranges inconsistency, and is spread globally through myriad servers.

Accuracy allows data to be carefully selected. Numbers will talk for themselves with enough details. Correctly interpreted data can help make sense and forecast the outbreak of pandemics, environmental disasters, or the likelihood of terrorist acts. Therefore, they can help avoid the spread of illnesses, the loss of resources, and the

loss of life. In the era of datafication, we exist. The capacity to document knowledge is the highlighted area between modern civilizations and advanced societies. The volume of data stored is growing four times faster than the global economy. Facebook knows our likes now, and Amazon will propose the best books, Google can rank the most popular websites, LinkedIn

determines who we know. More than 4.2 billion people globally use the Internet; Google currently processes an average of 3.9 billion requests every day; Snapchat users upload 602,672 images; users view 5,102,222 YouTube videos; 498,222 messages are shared on Twitter; Instagram users post 51,022 photos every minute; 1.7 billion people are posted on Facebook every day.

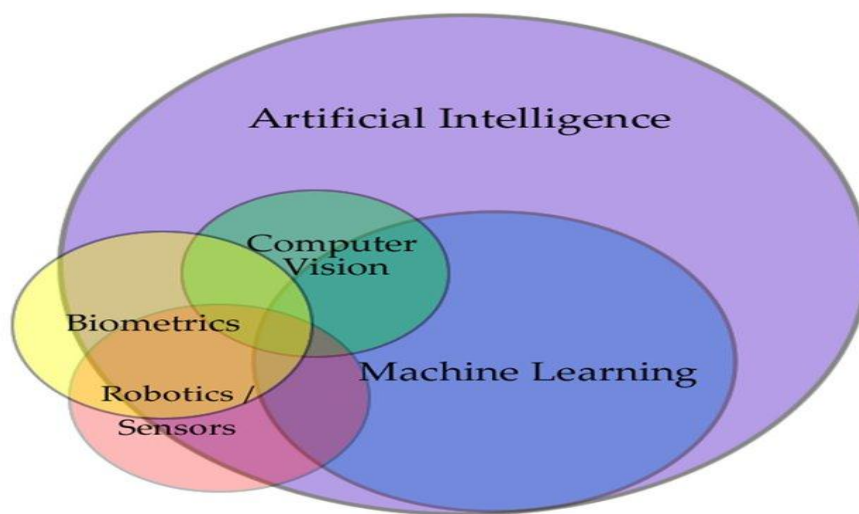


Fig-01: Emerging Tech with AI

1.2 Methodological Framework:

This study is a systematic overview of the literature, and is a rather rigid method of meta-analysis. A systematic literature review should aim to "gain perspectives, crucial reflections, prospective study directions, and research questions" and should "contribute to the development of research paths and questions by offering a basis on which to draw on prior findings". Additionally, systematic literature reviews serve as a foundation and rationale for new study, as well as offer the "context for developing research synthesis" for more advanced fields of research. Systematic evaluations use a

'replicable, scientific, and open method [...] with the objective of minimizing prejudice'. Though they are founded on a 'positivist, quantitative, form-oriented content analysis approach for evaluating literature,' they often make extensive use of hermeneutic and interpretive approaches, especially when generating perspective and critique. In this sense, the object of criticism is to "oppose the predominance of taken-for-granted aims, concepts, philosophies, and discourses."

2. SCOPE OF ARTIFICIAL INTELLIGENCE

One of the primary determinants of a state's international standing is its military might. Military capacity, as defined by the United States

Department of Defense, is "the capacity to accomplish a specific combat goal (win a war or battle, destroy a target set)." Structure, modernization, preparedness, and sustainability all contribute to military capacity. Modernization is primarily determined by technological sophistication, weapon systems, and equipment. A conventional conflict reminiscent of the Second World War is gradually sinking into obscurity and disappearing into cyberspace. According to studies, cyber assaults on private businesses and government entities have become a routine occurrence. According to academics, artificial intelligence (AI) and advanced automated systems will become an integral part of future military engagements. The majority of contemporary AI algorithms, for example, AI algorithms for natural language processing, need a vast quantity of data. They can function more effectively, efficiently, and effectively, but they cannot do so without access to enormous databases. The availability of large data sets and the rising computational capacity of computers have facilitated the growth of this discipline of inquiry. Nowadays, interest in neural networks continues to grow, as evidenced by an analysis of recent scientific publications on a variety of topics—development of ITS (Intelligent Transportation Systems), prediction and evaluation of atmospheric phenomena, and the ability to distinguish between information tweets (containing relevant facts) and non-information tweets (containing rumors or non-detailed information). AI algorithms may be employed in the military sector for a variety of purposes, including voice recognition systems and object identification and identification.

Meanwhile, data journalism is about combining data-driven perspectives with modern data richness and computational techniques. By diligent use of algorithms, calculation, and

quantification, the insight is obtained. The data journalism method includes access to or creation of organized data sets, utilizing the data sets for story analysis, addressing the source of data/data in a written article, supplying readers with raw data along with the story. This means finding out how to get the details, comprehend them, and find the plot. However, there is a big difference between 'evidence' and 'plot.' A source of knowledge is data itself. A journalist must go through a procedure to collect details, typically first sweeping up messy formats, structuring and organizing the data into a readable structure until it can be visualized. The story is an immersive mode of communication in which data is placed into a sense that can be interpreted, recalled, shared, and told to others. To say tales, data reporters use massive libraries, infographics, data analysis, and virtual visualization. It is about uncovering the facts through the mining of knowledge that the public does not have enough resources and expertise to do itself, challenge it, analyze it, make sense of it and discuss it with the viewer. Data journalism is about searching for everything about a news subject that is categorizable, quantifiable, and comparative. It may also be interpreted as the media's effort to adjust and react to developments in our content climate, including increasingly immersive, multi-dimensional storytelling, empowering viewers to discover the sources behind the news, and engaging in the story production and appraisal phase. We live in a world steered by data. All about the human operation is knowledge, including toilets. The most critical data is accessible from banks, telecommunications providers, drug companies, marketers, insurance companies, and national security agencies. Tectonic developments are taking place with the exponential growth in technology in facilities such as personal recommendations, password-free

identification certification, private and public transit services, wellness, and so on. We leave digital traces each time we send a post, make a call, or complete a transaction. Surveillance, biometrics, automation, data are creeping, or customer behavior is profiling present news monitoring with possibilities and obstacles. Data will be used to give more in-depth perspectives about what is going on around us and how it might affect us. Data will allow journalists with the insight and data they need to make sense of the significant problems of the day by asking viewers what has occurred. It will give us unparalleled Scope to consider our culture and enrich the way we live and operate if the data is used wisely and correctly. Data can strengthen a complicated narrative; it can enable journalism to speak the truth to authority. Data will help tell stories in more convincing and creative ways, coupled with conventional reporting methods, and provide actionable knowledge to people. A data journalist may allow his or her viewers to make sense of the government's policies, whether useful or struggling

3. LITERATURE REVIEW AND HISTORICAL BACKGROUND

In media, the news is a 19th-century innovation. A crucial inquiry into the past and models of journalistic practices shows that two values are guided by epistemological journalism: the "story" ideal and the "information" ideal. The idea of saying the "story" is embedded in the narrative form and individual expertise, contextual. The theory of presenting "information" is focused on mathematical evidence, details, statistical research, associations, and trends that are quantitative. A revolution in the view of media, from qualitative to quantitative, has been taking place since the middle of the 20th century. Media is, from a qualitative standpoint, explanatory and

interpretative. It tries to clarify the universe instead of weighing it. As human beings are programmed to look for explanations, the origin of the world's challenges and occurrences is found. It first constructs theories to pursue the facts or hits the truth, then gathers specific knowledge to explain it. It deals mainly with terms. Via evaluation and contact with individuals, journalists go to the field to collect knowledge. They log what they learn and then examine and interpret it to illustrate how the universe functions. Traditional media has traditionally been developed around two textual and visual components. In the meantime, computer availability has made it possible to leverage vast volumes of data to open the door to new forms of thinking and discovering the planet. The promises that we trusted in are moving. A change occurs from a world driven by theories to a world driven by evidence—the universe shifts from cause to correlation. However, the use of data in telling tales is not new but is the extension of the ancient pursuit of the human race to quantify, document, and evaluate the environment. Computer-supported news (CAR) is currently what we now term computer journalism. In journalism, the usage of computers goes back to the 1950s. To forecast the presidential race results, the US media company CBS first used Automobile in 1952. It was the first structured and comprehensive method to gathering and processing data utilizing machines to report news stories.

Many journalists have studied public information collections utilizing scientific techniques since the 1960s. Philip Meyer invented the Automobile and the application of social and behavioural science analysis methodology to journalism. Donald Barlett, James Steele, Adrian Holovaty, and Oren Etzioni are the other Automobile pioneers. The word precision journalism was invented to

characterize this method of news collection in the early 1970s. In the nineties of the last century, systematic analysis in data journalism started primarily in the USA. To explain the phenomena, researchers have invented several words. The words include data journalism, data-driven journalism, machine-assisted news, journalism in databases, organized journalism, computer journalism, journalism in databases, etc. Both comments have relatively comparable professional and epistemological origins, sharing stories in quantitative and technological type. Journalism's quantitative modes aim to uncover trends and associations in the data with fresh and invaluable perspectives. The insights offer certainty as to what, not why. The encounters do not inform us precisely that this is going on, but they advise that it is going on. The origin of a phenomenon does not necessarily need to be known; therefore, we should let knowledge speak for itself.

4. DISCUSSION

The increased use of unmanned aerial vehicles (UAVs) – more generally referred to as drones – in both military and commercial contexts has sparked a heated discussion over whether to outright prohibit what some refer to as 'killer robots' (e.g. Future of Life Institute, 2015; Human Rights Watch, 2013; Human Rights Watch and International Human Rights Clinic, 2016). These robots, which might be in the air, on the ground, or in and under water, are theoretically equipped with 'artificial intelligence' (AI) that enables them to carry out tasks autonomously. The argument, which spans several dimensions and stakeholders, centers on whether artificially intelligent computers should be permitted to carry out such military tasks, particularly when human life is at risk. Given the complexities of the subject, a functional definition of artificial intelligence is required. There is no universally accepted

definition of AI, even among computer scientists and engineers, but a broad definition is that it is the capacity of a computer system to execute activities traditionally associated with human intellect, such as visual perception, voice recognition, and decision-making. However, this definition is intrinsically simplistic, since the meaning of intelligent behavior is equally debatable. By this definition, a home thermostat is arguably intelligent since it is capable of sensing and adjusting the temperature. This is in stark contrast to artificial intelligence, in which a UAV picks and engages targets without significant human control, as is often assumed for autonomous weaponry.

Recent years have seen a surge in data journalism, with many journalists and news organisations seeing it as a means to improve the systemic, reliable, and trustworthy nature of journalism. This is especially critical in light of the concurrent decline in interest in journalism and media agencies, public attacks on journalists and news organisations, and increased adoption of the concept of objective plurality. Following highly publicized successes by data journalists such as Nate Silver and the launch of data-driven ventures by prominent news organizations such as The New York Times and The Washington Post, as well as digital-native outlets such as Vox, data journalism gained considerable discursive currency and reputational authority – but some of the euphoria has been dampened by highly publicized failures. Nonetheless, news companies continue to invest in (and demand talent for) data journalism, rendering it a rare field of innovation in a sector beleaguered by economic difficulties and attracting academic interest to its epistemological consequences. Though there has been an increase in scholarship on data journalism in recent years, the majority of literature is based

on ethnographic case studies and interviews with data journalists. These works shed light on how data journalism is conceptualized and implemented, but only give a glimpse into the outputs of data journalism. This perspective is critical for determining whether data journalism lives up to the potential celebrated by many academics and professionals, and, more specifically, whether it promotes the journalistic concept of openness and the immersive affordances of online journalism. Indeed,

accountability and engagement – or, more precisely, the understanding of them by increased interactivity – has been praised as potential alternatives to the decline of confidence in news media. Additionally, it is unknown whether data journalism has been more complex than its counterparts, and thus capable of exerting a greater influence on journalism's practice and goods, by dealing with more contextual fields and transcending niches.

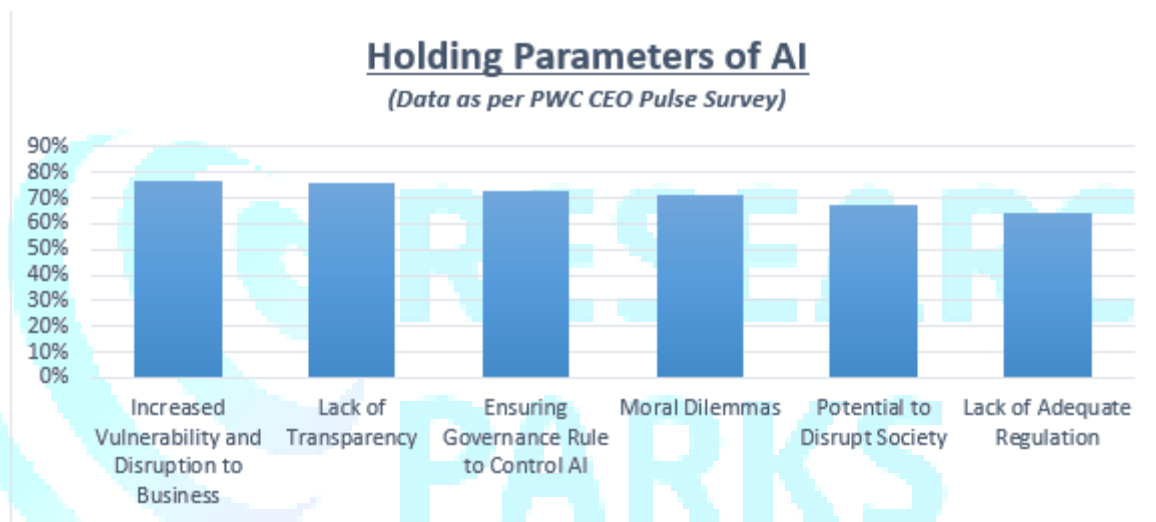


Fig-02: Parameters of AI

Furthermore, scholars have argued that data journalism can undermine long-term confidence and undermine the social contract of journalism by growing reliance on centralized sources through data subsidies. If data journalism's ability as a leap forward and a bulwark against eroding confidence is to be fully realized, its manifestations must be carefully studied. Numerous researchers have recently examined data journalism material, but the majority of their study has centered on submissions to award programs, which reflect ideal-types rather than the

day-to-day work people are subjected to on a daily basis. As a result, scholarly comprehension of what is referred to as "general data journalism" remains minimal, especially in the United States. This article fills the void in the literature by analyzing the characteristics of more common, everyday data journalism provided by The New York Times and The Washington Post in the first half of 2017. It analyzes over 150 data journalism papers for story characteristics related to the principles of transparency, interactivity, diversity, and content provenance. In general, it concludes

that contemporary data journalism is neither straightforward nor collaborative, though it is more complex than its nearest counterpart and perhaps more open to institutional channels and intelligence subsidies. As such, it has a long way to go until it can match the hope and idealization that mark the data turn in journalism in general.

As a consequence of the extensive conversation that ensued, three key topics highlighted for further learning and interaction among member states and other stakeholders were recognized: –

- a) **Possible Hazards of Military Uses of AI:** While there are clearly risks associated with military applications of AI, it is critical not to be too alarmist in addressing these potential threats.
- b) **Possible Advantages of AI in Military Uses:** There is a need to study the potential beneficial applications of AI in the military sector in more detail and to build state-level and multilateral mechanisms for securely capturing these benefits.
- c) **Potential for International Governance of Military Applications of AI:** These emerging technologies present significant challenges for international governance, and stakeholders' primary task will be to devise constructs that balance the trade-offs between innovation, capturing the positive effects of AI, and mitigating or eliminating the risks of military AI.

Skills Required for Artificial Intelligence

The abilities needed by employers to excel are evolving. The primary skill required for reporting today is making sense of big data, mostly unstructured data. In the growing quantity of digital information globally, a data journalist must be able to curate, check, interpret and synthesize the data set, have meaning, transparency, and

locate the truth. It does not substitute traditional journalistic skills; however, it takes new skills to find, understand, and evaluate, visualize, and program data. Journalists today need an overlapping collection of competencies taken from multiple areas. They should have experience and information of social sciences' mathematical techniques, GIS mapping software, statistics, and graphic design simulation arts, and a variety of computer scientists' talents that have their work requirements and promotion tracks: web creation, general-purpose computing, database management, device engineering, data mining (even, cryptography). So, today's journalist is a full kit of a statistician, a software engineer, a storyteller, and an infographic artist. Data is so easily accessible and so strategically relevant that information is the terrifying thing to derive insight from it. Overall, since gold may be mined, a goldmine is not worth much. Today, the secret to technical excellence in media is competence in information technology, computer analysis, analytics, and machine learning algorithms. A data journalist should be able to investigate news reports from datasets in making news, build a broader image by linking the datasets, look for trends in issues-events and behavior, examine data behind the stories, connect data to reports, contextualize stories, publish story datasets, and present graphic representation of knowledge in making news. Also, a data journalist should have the following skills: the ability to differentiate between 'data' and 'plot'; literacy in statistics and computation; the ability to recognize precisely how the quantification method works in society; the ability to mix technical and journalism skills; the ability to locate data to justify stories; the ability to find story suggestions by data analysis; the capacity to operate with complex datasets.

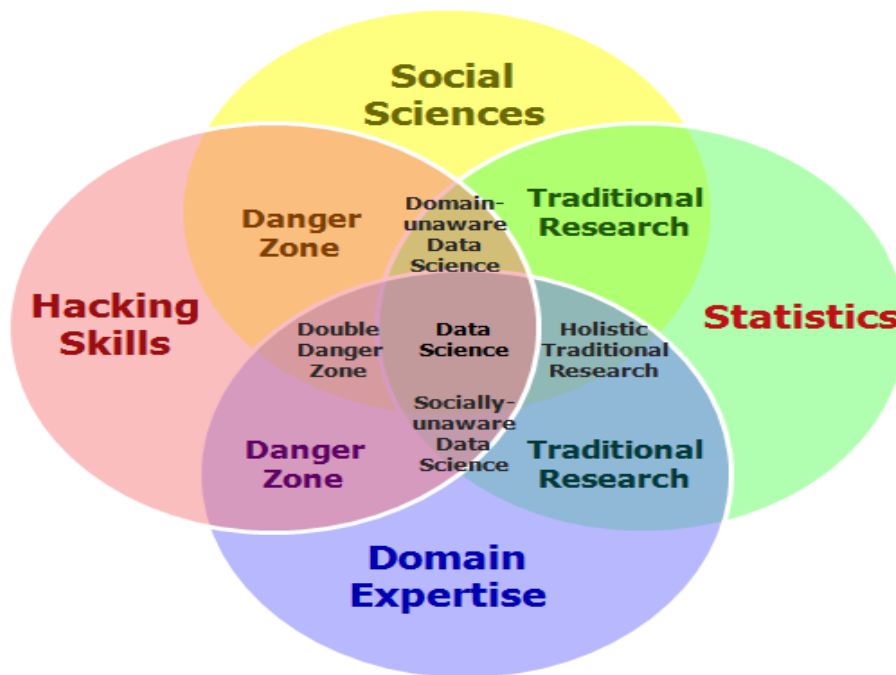


Fig-03: Integration of AI with other Fields

5. CONCLUSION

The submission's objective was to highlight the primary applications of artificial intelligence algorithms in the military sector, particularly in object identification, cybersecurity, robotics, and logistics, as well as to explore their influence on people's feeling of security. The article briefly presents well-known neural network methods in novel, unconventional applications. The authors want to emphasize the enormous popularity of neural networks, which is growing daily as a result of the capability of learning from large datasets. This is true for commercial, scientific, educational, and simply amusement purposes. The popularity of programs such as AIE demonstrates the critical nature of this branch of study. As research indicates, individuals continue to be fearful of the potential consequences of new technologies. This is reasonable, given the fact

that even specialists disagree on the future and growth of artificial intelligence. As Prof. Stephen Hawking put it, "the development of strong AI will either be the finest or worst thing that humankind has ever experienced."

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