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Original Article

AI Automation and Application in Diverse Sectors

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Abstract *– Artificial intelligence, commonly referred to as AI, has, in recent years, transformed the nature of human life in almost every aspect that is connected to human life. The aspects include economic status, job creation, employment, communication, war, security, privacy, and healthcare. The long term evolution of AI is yet to be seen if it will lead humanity in making the world a better place for living in or a disastrous place. For every technology to survive in the market, the advantages must outdo the disadvantages since every technology has its advantages and disadvantages. In artificial intelligence, since we have not yet reached the long term evolution, we are, however, to see if it will have an impact on the positive effects than the adverse effects. In the world today, we are surrounded by technology in every aspect of life, and we seem to embrace them starting from the aspect of healthcare, industries, smart homes, and even cars that are autonomous. On the negative side, 9technology seems to take away jobs from many individuals who are too intellect on matters of technology hence creating the context of unemployment. As technology is advancing quickly, robots and autonomous systems are developed and born daily, therefore replacing the labour provided by humans. However, this being the current situation generated by technology, the exciting parts are brought by the system's long term results which tend to be very fulfilling to human life. Throughout this essay, I will address Artificial Intelligence starting from its development to the current situation, including its significance in human life in both the positive aspects and negative aspects of life.*

Keywords *- Artificial intelligence, Autonomic computing, Algorithms.*

I. INTRODUCTION

According to the Oxford dictionary, Artificial intelligence is defined as a series of synthetic intelligence that is exhibited by devices due to their cleverness. On the other hand, computer science views artificial intelligence as a machine that can flexibly perceive the logic agents in the environment. The device can partake in the actions that maximize its chances of becoming successful in handling objects (Lu et al., 2018). Artificial Intelligence is also enhanced to mimic human intelligence, such as thinking, learning, solving problems, planning, perceiving the environment, and processing natural language, among many others. This makes AI fall in the synthetic intelligent category. The president of Alphabet, the executive in the Google Company, Eric Schmidt, depicts that leveraging AI will make it possible to solve some significant challenges, including changes in the environment, diagnosis of a condition, and discovering medications microeconomics, providing theorems, and folding protein. However, he does not contain any information that partakes how AI will be made to perform such complex tasks, thus creating a dilemma. The CEO of Deep mind, Demis Hassabis, which is a company for AI, stated that the company should leverage the AI effectiveness to be able to solve intelligence in a means that is broad enough, "We can put AI on to any types of items to improve the spots to life and make the world a better place," (Jackson, 2019).

Facebook's primary technology officer, Mike Schroepfer, expresses hopes that are similar to the others in that the AI power of the technology can be able to solve specific issues that are experienced in the whole world. The synthetic cleverness of AI is viewed as a tool that will revolutionize how people live, interact, and work. It is significantly enabled by the strategies of the machine to be able to learn (Acemoglu & Restrepo, 2018). However, it is not clear how the intelligent agent of AI will assist in solving the dilemmas that are complicated concerning the lives of people on matters, Epidemics, Poverty, and weather modifications. This is because the AI state of the art has been able to recognize pictures intelligently and contests that are smart winning in recent years (Konar, 2018). On the other hand, if AI is enhanced, then it will deploy the minimum cleverness of a superhuman as well as the arising concerns on the frameworks that are appropriate in preventing the AI from being maliciously used and placing humans in devastation.

The current situation that is taking part in the AI progression indicates that the big enterprises occupy it and that it consists of the most prominent players in the industry. The enterprises include Facebook, IBM, Microsoft, and Bing. Steady effects can also be seen in the AI progression on matters of job eradication by automating the works, a situation currently experienced in the market framework of 4.0, which is used in the industry of vehicles. 4.0 industry produces the so-called smart factory whereby robots are now taking over the whole manufacturing procedure, which is aided by a cyber-physical system, IoT, and cloud computing (Hosny et al., 2018). Ethical concerns are comprehensively arising in machines being able to perform the intelligence of a superhuman and ask questions on whether the robots will continuously be making moral choices and if humans are

at risk of the super-intelligent devices (Topol, 2019). This essay will address all the concepts related to AI technology and its impact on human life.

II. LITERATURE REVIEW

A. Evolution of artificial intelligence

AI was established in 1956 to create information that is non-biological and has been underway for a very long time. The aim of intelligence creation was reasonably recast as and purpose of intelligence designing. Leibnitz wrote about the reasonability of the perspective of life in the form of calculations hence making the thought of creating AI as a process of developing a watch or a waterwheel (Duan et al., 2019). Firstly, you should have a proper understanding of the principles, then use the intelligence of a human being to improve a design based on those principles then finally create a system that follows the model. William Paley made an explicit assumption in the 19th century, arguing that the designers of AI are necessary for the manufacturing of complex and adaptive systems. In 1859, Charles Darwin refuted Paley's claims by proving how the system that is complex and adaptive can naturally arise from a selection acting process on the random variation (Tran et al., 2019). This means that he showed that complex and adaptive designs could be created without being a designer of intelligence.

We can now fully understand that the exciting features of intelligence have roughly arisen through the evolutionary process developed by Darwin. According to a survey that was recently done in the United States, it was found that 42% of the total respondents had belief in "Life has become exciting on earth in the present since time began" (Willemink & Noel, 2019). The views have gained profound support from the dominant forces in the political sector, and the president of anti-science has come to agree with it. The scope of the shocking political reality is beyond the present essay scope (Jones et al., 2018). Within the research community of AI, those who engage in accepting the evolutionary evidence on matters terrestrial life and ignoring the power of the process of evolution in producing complexity that is adaptive in contexts engage in the pre-Darwinian thinking aspect.

Asking the question of whether the evolved AI will serve the broader aims of the AI field is critical. Every text related to the AI field begins by defining the area. Many of the definitions are oriented in an explicit way towards the design that is presumably the designs made by human beings who are intelligent (Jatoba et al., 2019). A good example is a definition created by Dean et al., who defined AI as "the study and design of the computer programs that behave intelligently." This means that we are therefore rooted in studying the system that evolved and, in particular, deploying the understanding that is resulted in a future design basis (Haenlein & Kaplan, 2019). Thus, the AI researchers who are mostly oriented on the design should create an interest in the artificial intelligence that evolved if it can be created.

Therefore, under any circumstance, the assumptions prevailing that intelligent human designers can only design AI are flawed and should be rejected profoundly. The pre-Darwinian assumption is, therefore, prevailing as it demonstrates the lack of perspectives that are evolutionary in the AI texts and the treatment of evolution in a niche way as a search that is specially purposed in the learning of algorithms in most of the AI mainstream in the literature research (Kaab et al., 2019). The trajectory of the field's history from a focus that is of mental isolation and sophistication facilities to a discussion that is on the everyday tasks commonly applied knowledge, and in the current years to the focus on the complete construction, is a trajectory from the AI concept. The intelligence, in this case, is towards the derived theories of the natural intelligence forms that are observed in the surroundings (Hildebrandt, 2018). The extension of this logic and the trend of models of AI focuses on not only the natural evolution of the products by also the entire process attached to the AI technology.

B. A brief history of artificial intelligence

Modern AI can be rooted in Greece philosophers as they were modelling the thinking of humans as a symbolic system. Recently, a school was developed called "Connectionism" that handles the study of the thinking process. Alan Turing, later on in 1950, wrote a paper that suggested how one can test machine "thinking (Du et al., 2018). He believed that the machine could be described as thinking if it can carry out conversations utilizing imitations of human beings without noticeable differences and in a teleprinted way (Haenlein & Kaplan, 2019). The efficiency of developing AI has not been streamlined since its establishment. Since it was started as a concept of imagination in 1956, the cutting of the AI funding research was done in the 1970s after several reports indicated criticism in progress being slow. The human brain, referred to as the "neural networks", was imitated in several efforts, and the experiments were done and dropped (Tyukin et al., 2019). The functional programs that were the most impressive ones were capable of handling the problems that were simple and were given the toy description by the people who were not impressed by the system. AI researchers have made assumptions on the issues they are likely to encounter and have made optimistic establishments for their goals to be achieved.

C. The First Artificial Intelligent Winter

The research team for AI was faced with limitations in the memory capacity and the speed of processing that will meet the modern-day standards. The research on AI resumed in the 1980s after it has dropped with findings from the U.S. and Britain to compete with the fifth generation project of the computer from Japan and their aims of leading in the computer technology sector (Fang et al., 2018). "The First AI Winter" was the name given to this period that stretched between the 1970s and 1980s. The period ended when the "Expert System" was introduced, which was developed and adopted very quickly by the corporations that were competing all over

the world (Grace et al., 2019). The theme of knowledge accumulation was the AI research primary focus from experts around the globe.

D. Cybernetics and Neural Networks

Cybernetics deals with the study of automated control systems. The system of communication used in the computer, the nervous system, and the brain are typical control systems (Fox, 2018). The modern version of the neural networks adopts the use of cybernetics as a training tool. However, in the 1990s, the neural networks were unable to become financially stable since they were used in operating the optical character recognition (OCR) programs and the programs used in recognition of the patterns of speech (Abduljabbar et al., 2019).

E. Expert systems

An AI research approach is represented by the expert system that became known in the 1970s. In creating a program, the expert system implements the use of the expert's knowledge (Azizi, 2019). The system is capable of handling questions and solving problems within an arena that is clearly defined in knowledge and adopts the use of logic rules. They became easily reasonable due to their design, which is simple for program designing, building, and modifications. Before the 1980s, the expert system was used in the programs used by banks to screen loans, and some medical applications in sales also used the expert system (Du et al., 2018). Therefore, the simple expert system became a useful tool and started to enlarge businesses by saving large amounts of money.

Digital Equipment Corporation, for instance, began using the expert system in their sales team named the XCON and was used in placing orders by customers. The DEC sold a range of computer components, but they did not know what they were selling by the sales force (Steels & Brooks, 2018). Some orders were missing some relevant elements, and some of them combined components that could not work together. The effects resulted in the company gaining losses, and efforts that were made to automate it failed incredibly (Liu et al., 2018). Therefore, they opted for the expert system, which was a technology that was new and suggestive of the kind of problem. By the end of the 6th year, the system had been able to save the DEC a total of $40million every year.

A system that could process multiple orders was developed, which is called the R1 or the XCON. The system's programming and maintenance were comfortable, and many firms opted for it, including the DEC. XCON integration was considered a relatively successful experience (Jatoba et al., 2019). XCON has been able to evolve significantly, reaching up to 2,500 rules from 750 rules. The computer system implemented the use of AI techniques in problem-solving within an industry setting in the real world. A new career was developed to support the Expert System since it began gaining demand all over the world by the year 1985. In the United States, XCON was capable of configuring orders for sales for all the VAX-11 systems of computers that were manufactured in the country (Hildebrant, 2018). The only limitation in this system is that it required a full-time IT team since it required continuous adjustments and updates.

F. The Second AI Winter

Another winter was experienced in the AI field from the year 1987 to 70 1993. This research coincided with the XCON and the earliest expert systems of computers that were depicted as slow and clumsy. Desktop computers were replacing the older machines that were bulky since they were gaining popularity due to their user-friendliness. Suddenly, the desktops became cheap in maintenance as compared to the expert systems (Tyukin et al., 2019). The expert systems were viewed as being difficult to update quickly and could not learn. The problems were not experienced with desktop computers. Eventually, the Defence Advanced Research Projects Agency (DARPA) redirected its funds to AI, arguing that it could not be the next wave and that the project was deemed in providing quick results (Jones et al., 2018). As a result, the AI research funding was cut off deep in the 1980s hence the result of the Second AI Winter.

G. Computer conversation with the users becomes a reality

The focus of AI research was shifted to the agent of intelligence in the early 1990s. The services offered by intelligent agents include retrieval of news, shopping online, and web browsing. The agents can also be called bots (Lu et al., 2018). The assistance of personnel in a digital manner was done by the use of data programs that are big hence creating a virtual assistant to the user. The giant technology businesses such as IBM, Microsoft, Facebook, and Google are currently researching several AI projects that include creating assistance virtually. Facebook has developed Facebook's M as an assistant, Microsoft has Cortana, and Apple has Siri. The goal of developing a machine that is intelligent for imitating humans' conversation using a teletype is no longer the AI goal (Hosny et al., 2018). The evolutionary step has been significantly achieved by the use of Big Data in AI. The new aims are to create software programs capable of conversing in a language that is as natural as the English language and to assist virtually. The AI research is represented by virtual assistance and may be deployed in robots that can enable physical help. They can also be implemented in a laptop to help in making business decisions or integrating them into a customer service program for a business and answering calls (Konar, 2018). However, AI is still evolving in every concept and developing a new use.

H. The impact of Artificial Intelligence on Society

Most life changes are categorized with both positive and negative effects on Society, and A.I. is not an exception since it continues transforming the universe. The balance of the positive and negative impacts of A.I. creates debate, and many people opt to contemplate the matter (Topol, 2019). The A.I., as can be seen, is a relatively

well-rated system, but in some people, it can pose a lot of challenges depending on the level of understanding of the system and its effects on one's life. Therefore, it is necessary to address the challenges and the positive impacts of the system of A.I. on Society (Duan et al., 2019).

I. Positive Impact of Artificial Intelligence on Society

A.I. can significantly change workplace efficiency and augment the work done by a human. This means that all the repetitive and dangerous tasks to human life are taken over by the A.I. systems, thus freeing up the workforce of human beings to involve themselves in the works that they are better equipped with (Tran et al., 2019). This consists of the creation and empathetically works, among many others. Happiness and satisfaction in the workplace are enhanced when people are engaged in more engaging jobs.

A.I. offers monitoring and diagnostic capabilities that are better hence influencing healthcare dramatically. A.I. reduces the costs of operation, therefore saving money by improving the healthcare facilities and the organization of medicals (Jones et al., 2019). The U.S. annual financial statement indicates that A.I. saves medicinal and pharmaceuticals up to $100 billion annually. Patient care will, therefore, incur a significant impact. Plans for personalized treatments and protocols for drugs provide better information access across medicine facilities to help inpatient care information.

With the A.I. influence on autonomous transportation, the Society will gain hours of productivity that are countless (Haenlein & Kaplan, 2019). This is because A.I. helps to address the issues of traffic congestion and also improves the productivity of jobs. Due to the effects of stressful commuting being addressed, humans will now be able to spend their time on different ways of improving their lives.

The uncovering of crimes and solving criminal related issues will become comfortable with A.I. systems. A.I. presents many opportunities in the justice system as it helps in figuring out how to adapt the use of technology effectively without affecting the privacy of an individual. A.I. now impacts our lives in all the means unless someone opts to live in a remote area and never gain interaction with the modern world (Hildebrant, 2018). Learning experiences and the challenges that are faced due to the technology cannot limit the advancement of A.I. since it has a far-reaching impact on the positive way that on the negative way of Society.

J. Challenges Faced due to Artificial Intelligence

The introduction of A.I. causes evolvement in the human workforce. The biggest problem that is headlined is the loss of jobs to the machines. The problem that is real here is for humans to adapt their passions towards a particular position with a responsibility that requires them to act uniquely and requires unique abilities (Jatoba et al., 2019). Over 7 million jobs were lost and replaced by the A.I. according to the PwC in the U.K. On the other side, 7.2 million new jobs were created. This, therefore, impacts how some people make a living in Society hence posing a challenge.

People should be prepared to deal with the impacts of the transformation of A.I. on Society. This is because it will have implications on the economic, political, legal rights and the implications of regulations that require discussion (Kaab et al., 2019). Examples of challenges to be faced include whether to determine who is faulty in an autonomous vehicle accident to a pedestrian or on how to manage the global arms race of the self-employed.

The most challenging question posed is if the machines become super-intelligent, will humans lose control eventually? There are a large number of debates around the world if this scenario will occur and if there will be consequences that are not seen when the technology has been introduced (Willemink & Noel., 2019). Those outcomes that are always unintended on matters A.I. will become a challenge that affects all of us.

Another challenge is to ensure artificial intelligence does not become so prominent in the workforce in which it was stipulated to perform and crosses the boundaries of ethics and legality. The original intention for the implementation of A.I. is to supplement human benefits (Fang et al., 2018). If it goes against these desired outcomes, it will impact Society negatively and destructively. Therefore, A.I.'s algorithms should be created in a way that is in line with the individual goals that are overreaching.

Data is fed into the algorithms of A.I. and helps to power it. As the system continuously collects data every moment and daily about an individual, the individual's privacy can be compromised (Grace et al., 2018). If the government or a business decides to make decisions based on intelligence, just like other forms in the United States do, then they will create social oppression on some individuals, which was not meant in real life.

K. Applications of Artificial Intelligence in the U.S.

AI has several applications in Society. The form that is mostly adopted in the form of AI in which their programs perform a specific task is implemented in several daily life activities, including electronic trading, robotics control, diagnosis of a medical condition, and sense used by the remotes (Kann et al., 2019). AI has been able to advance and develop fields that are numerous and also industries, including the various sectors of education, transportation, financing, and healthcare systems.

L. Artificial Intelligence in Agriculture

AI has been able to improve yields, increase research, and track crop development in the agriculture field. The newest AI is now capable of predicting the time in which a crop, for instance, the tomato, will take to ripe and be ready for pick up hence increasing the farming efficiency (Fox, 2018). The advancements also monitor the soil, development of robots for agricultural practices, and analytics for prediction purposes. New algorithms are developed to collect data on the field to track and manage

the crop's health making the farmers work become manageable and sustainable (Azizi, 2019). Recently AI on agriculture has specialized in the issues of automating the greenhouses, developing simulations, modelling, and the techniques for optimization.

M. Artificial Intelligence in Aviation

The expert systems that are rule-based in the Air Operations Division (AOD) adopts the use of AI. They take AI for the operations that are surrogate for the compartment and includes simulation training, aids for mission management, and the system for support during the making of tactical decisions, and the post-processing of the data for simulator into symbolic summaries (Zeldam, 2018). The Airplane simulators use AI to process the information that is from the simulated flights. Apart from flying simulation, also AI offers aircraft warfare that is simulated. The situations are best brought out by computers. The programs for AI can sort information and provide the pilot with manoeuvres that are the best possible ones and get rid of the manoeuvres that are impossible and may harm human life, according to Due et al. (2018). The computed simulator pilots also train air traffic controllers (Du et al., 2018). The artificial pilot is given directions with the air traffic controllers by the use of software that uses AI in speech recognition.

N. Artificial Intelligence in Computer Science

The researchers for AI have been able to develop tools for solving the most challenging problems in the field of computer science. Mainstream computer scientists have adopted many AI inventions and are no longer categorized as part of AI (Steels & Brooks, 2018). The following were all developed in the laboratories for AI: "interpreters for interaction, graphical user interface (GUI), time-sharing, mouse for computer, environments for rapid application development (RAD) symbolic programming, and object-oriented programming among many others but are now categorized as computer science developments," according to Liu et al., (2018). AI can also be implemented in the potential determination of binaries that are anonymous (Liu et al., 2018). AI can also be used in several fields apart from the ones mentioned since it has created an intelligent platform in the world we are living in.

III. DISCUSSION

In the marketplace, AI has shown significant progress in a couple of years. It is due to the promising and repeated giant leaps of AI. It has been able to mimic humans in most of the tasks and exclusively perform those, according to Fang et al. (2018). It has also been able to address the debating, which became possible by the research and developments that were extensive under the IBM hands. The AI human debate conducted by different organizations enables the handling of the debate easily by the debater of the project. This has enabled decision making to become secure and make more informed choices that would strive for the aid of the debate (Haenlein & Kaplan, 2019). The initial stage of AI is currently evolving. Eventually, the moulding of AI will be subjective to the heterogeneous in the years that are coming. It will make AI become the sole human companion and ever surpass the capabilities of humans in various tasks that require consistency and be precise.

AI can be divided into three different types in the jobs in which they partake. The narrow intelligence artificial is commonly referred to as the ANI, the general intelligence artificial referred to as the AGI, and the superintelligence artificial referred to as ASI. This makes it become the catching and essential trend that are latest in making one achieve their goals effectively (Tyukin et al., 2019). Researchers complement that if you are in a rush of brushing your skills up and achieving certification to its quality, you have to join an AI training institute in the U.S. that offers the most convening and comprehending courses that are AI-related. Humans always believe that they are the only ones who can exhibit their own emotions and make them act accordingly. According to Jones et al. (2018), they believe in comprehending their feelings and making decisions that are judicious in real-time though they miserably fail on several life junctures (Jones et al., 2018). This, therefore, leaves the question which many are left with is AI will become capitalize on the decisions that humans are failing in and behave more than humans?

IV. CONCLUSION

Science and myths have long been said to be the mother of artificial intelligence. Creating an image of a machine that executes human-related concepts like thinking and performing complex tasks is an idea that is thousands of years old. The expressed truth in AI are not new since they are cognitive and have been there before. It is, therefore, essential to view AI technology as a cognitive implementation of robust and long-lasting principles through the concept of engineering. We should, therefore, embrace the approach of all the relevant innovations as a way of imposing our anxieties on the constitution of a happy life in the world and a hopefully better experience. The AI potentials do not necessarily lie in the intelligence of the machine, but it primarily lies in the technologies attached to its effectiveness. In the U.S. today, trust in technology enables people to do good and be able to partake in their daily activities effectively.

AI in the U.S. is viewed as an enterprise that is new in building models of competence of intelligence. The assumption made is that information can be represented in a structure of symbols and operational symbols that can be implemented in a digital computer through programming. Whether the AI that is programmed appropriately is a mind or a simulated aspect is still a matter of debate. The researchers of AI are therefore left to conclude the discussion or develop a computer that can hypothetically model the whole human intelligence. All the aspects of human understanding and problem-solving techniques have adequately been coded in the form of computer programs, and some surpassed the domain of identifying a disease on a plant. This indicated that AI programs could outperform human experts. Conventional digital computers

are capable of representing and commencing knowledge and the people's experience in day-to-day activities and running the programs. We may be required to develop new machines that can support the human thought that is regarded as complex.

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