

THE USE OF ARTIFICIAL INTELLIGENCE IN HUMAN SOCIETY AND THE WORKFORCE

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ABSTRACT

Artificial Intelligence is a branch of computer science that imitates characteristics of human understanding and intelligence. As humans strive to improve the standard of living, artificial intelligence has played an integral role in the changing of the manner that society takes to accomplish goals. The use of artificial intelligence has grown in both the workforce and the daily lives of the general public. The research conducted in this paper means to analyze how far the extent of the use of artificial intelligence is in both the workforce and in the daily lives of human society. Artificial intelligence includes virtual assistants, computer storage databases, and self-operated machinery. The goal of the technology is to make the lives of man easier, as well as their functions to be more reliable. In order to measure the extent of the use of artificial intelligence in each category, the researcher created a scale using guiding questions that were applied to each category in order to compare each. The guiding questions provided a way to understand how much the technology was used in each aspect by giving each category a score depending on where it fits under each level of the guiding questions. The paper provides a scale of how involved the technology of artificial intelligence is in today's society and what benefits are derived from its use.

Keywords: Merchandise Regulation, Cyber Security, Self-Operated Machinery, Artificial Intelligence

INTRODUCTION

The development of new technologies in recent decades has shaped most of the social climate known today. The constant development of technology taking place during recent years is responsible for the rate of change happening in today's society. The scale of innovation that has occurred during this time has been the most to occur compared to that of any other time period (Byrum, 2018). The level of accomplishment accredited to a certain time period is measured by the ability to develop new assets that contribute to a better quality of life. In the world today, most of the population living in advanced societies are highly dependent on technology and its benefits. Technology has become such a major factor in daily life that it is a part of most activities in a person's day (Explore, 2018). As time progresses the abilities of technology advance to aid humans in all aspects of life. Humans rely on machinery to do so many activities that had previously been done by humans that it is nearly impossible to live a normal day without coming across some sort of technology.

The term intelligence refers to the ability to acquire and apply skills and knowledge in solving existing problems. Artificial intelligence or its acronym, AI (Artificial Intelligence) is a program used to see the ability of machines to learn human behavior and provide responses or reactions like humans (Guzman & Lewis, 2020). The program is embedded in software, machines or robots so that it can act like what humans do and think in accordance with what humans want. Human and machine intelligence have many significant differences. Humans are smart and skilled in solving problems because humans have experience and knowledge. The level of human intelligence also determines the quality of thoughts and actions

performed by humans (Vinuesa et al., 2020). The more experience and knowledge gained, the more problems that can be solved (Guzman & Lewis, 2020). However, the intelligence of the human mind also has its limitations. Humans do not have the ability to find information such as the latest info quickly without relying on machines such as computers.

In addition, AI was also developed to facilitate daily tasks and human needs including roles for convenience at home, socializing friends, automotive, industry and as a tool of war. According to Chang (2020), the use of AI has increased dramatically and is widely used in automotive, data identification, patient data processing, merchandise regulation, mapping, system maintenance, cyber security, HR systems and analysis in medicine. This shows that the existence of AI changes the landscape of human social life in carrying out daily activities and occupations.

RESEARCH BACKGROUND AND PURPOSE

In its journey to advance and develop its standard of living, the human population has created and adapted technology to assist in daily activities as well as major projects. There are very little aspects of life that do not use technology to lessen the workload of the human. The goal of technology is to ease the lives of the population. The less those humans have to do, the easier their jobs are. However, it is undeniable that some jobs need critical thinking or problem-solving skills, skills that for a time, only the human brain was known to be able to provide. The goal of creating technology to help with human tasks brought along the development of Artificial Intelligence (AI). Artificial intelligence is a branch of computer science that imitates characteristics of human understanding and intelligence (Engle, 2020). In the recent decade, artificial intelligence has advanced to mimic human function to a highly realistic degree. AI is becoming a major part of a variety of different careers, many of which were thought to only be able to be accomplished by humans (Armstrong & Rahimi, 2019). AI is a focus for many developers because it removes the concern of human error in tasks. The thought is that tasks will have a higher accuracy rate with the removal of human error, and activities will be accomplished in less time and more correctly. Focus has been shifted on adapting artificial intelligence to all areas of the work sector in order to minimize human error in different aspects of life (Explore, 2018). The purpose of this paper is to determine the extent of the applications of artificial intelligence in the development of society as well as in different areas of the workforce. Much of artificial intelligence goes unnoticed because of its subtle but constant use in daily life. In order to recognize the extent of the use of AI throughout society one must analyse the different uses it has been give in different areas and how its use is balanced with human intelligence on a regular basis in different careers or in different situations. This research is necessary because it can aid in the determination of to what extent artificial intelligence should be used before major consequences arise.

THE DEVELOPMENT OF ARTIFICIAL INTELLIGENCE

Mankind has used and created tools that help them with daily tasks since the beginning stages of the species. The human mind is unique in its ability to create, comprehend, and experience (Huwaireb, 2018). The constant use of their surroundings to enhance and improve their quality of life is a distinguishing characteristic of humanity. There is very little that comes close to mimicking functions and thought processes of the human mind. As time moves forward, the implementing and innovating of technology only increases. By creating-what can be referred to as 'tools'- that can lessen the workload of humans, it is thought to make human jobs easier. The implementation of computer systems in all sectors of the workforce to keep track of records; the room for human error, such as misplaced or destroyed records is minimized and data is available to be used more flexibly

(Korzep, 2010). It is also easier on those responsible for keeping the records, as they do not need to search for paper documents when needed and can rather pull them up technologically.

The same ideas are applicable in different areas all over society and especially the work sector; minimize human error and minimize human effort. Tasks that do not require human intelligence and can be pre-programmed are completed by technological programs to shift the focus of humans to the tasks that are impossible for a computer to do. However, in recent years the abilities of computers have been developed to become increasingly similar to human abilities. The development of artificial intelligence has contributed to a higher percentage of tasks in the workforce and in society to be done by technology. Although much of how the human brain functions is unknown, artificial intelligence is programmed with operational principles of the brain that aid cognitive abilities and processing skills (Qiu, 2016). Having a device that can process and work with information the way that a human mind can without the limitation of human error, results in more accurately completed tasks as well as more uniform functions.

Apart from the different AI device frameworks, in order to make a computer a smart machine and able to behave like a human, knowledge base factors and engine inference need to be included in the AI system (Topol, 2019). This knowledge base factor includes facts, theories and the relationship between the two. Engine inference factors include the ability to draw conclusions based on knowledge and experience. The combination of these two factors creates Artificial Intelligence (AI) that performs input and output processes. Machines will be able to receive and interpret data entered by humans as well as provide answers sought by humans in a timely manner (Paschen & Kietzmann, 2020). Although this AI is still in the early stages of development, but the use of AI has expanded and led to a variety of great technological inventions. The reality is that the use of smartphones, tablets, laptops, drones, automatic machines, self-driving vehicles and robots are examples of the use of AI. The same goes for social media applications like Facebook, YouTube; Google search application, Yahoo; Waze navigation app, Google Maps; and applications Alexa, Siri, Cortana, Google Assistant smart voices are examples of AI implemented in various forms (Topol, 2019).

Because artificial intelligence is meant to mimic the capabilities of the human mind, it can be put to use for a variety of tasks. Because AI is able to distinguish between information and recorded data with more than just a search of key words, it is easier for humans to search for details quickly. If limited data is available on the topic one can contribute more content on the topic at a later time, improving the system for the whole. AI is also unique in that it can analyze voice recordings and identify the emotions behind them and then recognize what to do as a response (Subramaniam, 2020). For example, an AI program answering the customer service phone call of an angry client would recognize the caller's distress and recognize that the customer would need to be forwarded to an agent (CRM Magazine, 2017). AI can comprehend written or spoken sentences and recognize the necessary appropriate response. There are four abilities that contribute to artificial intelligence being as similar as it is to the human mind. The abilities to sense surroundings, to converse, to learn, and to take action define what makes AI so significant (Douglas, 2018). AI is typically separated in two categories; consumer and establishment based. Consumer based usage of artificial intelligence has grown significantly in the past decade, becoming incorporated into homes, transportation, and communication. In the modern day, AI defines a large part of society and is incorporated into much of daily life.

Artificial Intelligence in Public Use

As technology advances and becomes more accessible to the public population, it is more likely that its use becomes common. What can once be known as a new and scary device can become as much of a minute basic necessity as a lightbulb. The voice recognition ability of AI has made it indispensable in many households. People use AI to command their

lights on or to enable their alarm systems. One type of AI system with increasing popularity is that of a virtual assistant. Virtual assistants are now used all over the world to help with simple tasks in a day. Virtual assistants such as Siri created by Apple or Alexa by Amazon, are able to answer questions and complete tasks all while interacting with the human using it (Shih & Rivero, 2020). Virtual assistants are able to carry on a conversation with a user in addition to performing tasks such as ordering food, adjusting thermostats, and reading text out loud. Although they are all functions that a human can do easily, much of the population has become acclimated to the convenience of AI (USA Today, 2018).

In addition to becoming a staple in modern households, Ai has integrated itself into modern transportation. Many cars are adept with voice recognition in the same way homes are in which directions can be asked for or music can be played. An advancement found in luxury cars is the use of artificial intelligence in the driving of the vehicle. Self-driving cars are programmed with the intention of reducing accidents as well as reducing the effort needed by humans. People can be driven to their locations without a car service and without driving themselves (Freedman, 2018).

Artificial Intelligence within the Workforce

The healthcare field is one in which there is minimal room for error. Records must be accurately kept, and diagnoses must be accurate because the lives and well-being of the public are at stake. Human error occurring in the medical field can be detrimental and occurs more commonly than it should (Agarwal, 2020). Requirements to work in the medical field are generally extensive because this field handles the health of human beings. Those employed need to be updated on new discoveries consistently and knowledgeable of new studies and procedures to be able to provide the best care possible. With the main focus of artificial intelligence being minimizing human error, it is logical that AI would be incorporated into the healthcare field. AI programs are being developed and put in use to make diagnoses and identify treatments. They are able to analyze the data given and compare it to their 'knowledge' or databases and provide results. In comparison to human doctors, the AI systems have a higher capacity for knowledge and there is no human error risk (Goodman et al., 2020). The use of AI in the healthcare field also increases the likelihood of universal healthcare because of the ability to make AI available so publicly. Diagnoses will be made in shorter time frames and with a higher percent accuracy.

Agriculture is a part of the work sector that requires physical human labor. It is also one that is severely affected by the current state of the environment. Areas near the equator are experiencing lower crop yields because of global warming and so these areas are losing food for the population. Developing countries are especially impacted by this because they do not have the means to import food. Adapting artificial intelligence to agriculture allows for a better chance of having a higher crop yield. AI can be used to monitor the soil and environment and then provide information on how farmers should manage their crops (Young, 2020). Having specific directions on how to increase crop yield to the highest extent would be beneficial to farmers in underdeveloped countries because it allows for a higher amount of food being grown for the whole country (Smith, 2020).

Similar Research and Gap

In the wake of a rapidly growing technology, much research needs to be done in regards to it so that people can form their own opinions on it and researchers can understand the implications of using it. Because artificial intelligence is such a new technology and one that can be applied in nearly every aspect of life, there is a vast amount of research and questions about it because it is important to understand a science that will be so involved in the future of society. One topic similar to the one examined in this paper is Rachaniphorn

Ngotgamwong's research on Artificial Intelligence and Its Impacts on Employability. To study how far artificial intelligence can go in replacing humans in the workforce and how much it already has, the researcher from Stamford International University, Thailand used questions to guide his research into analyzing how much AI has contributed to human functions in Thailand and how much its use is projected to increase (Ngotgamwong, 2019).

In another study conducted by Karen Korzep, a researcher at the University of Central Florida, the research followed a question being asked to a group of people and analyzing their responses. The question being whether they believe health related technology would replace human jobs in that field over time, and then which jobs in that field do they see being phased out (Korzep, 2010). The studies revealed that not only is it likely for AI to become a major part of the work sector in the future, it is expected by most to be the future of many careers available to humans today. This paper acknowledges those findings and is researching to what extent AI is used in different career settings as well as in the general public today.

RESEARCH METHODOLOGY

In order to gather insight on the extent of the use of artificial intelligence in the workforce and daily public life, a study using compiled data was conducted. The researcher created a set of questions to refer to when compiling data in order to depict the degree of use of artificial intelligence. The researcher accessed research articles, studies, and reports and using the guiding questions derived data that can advise the overall research question. The researcher chose three fields in the workforce: medical, agriculture, and customer service. The researcher then selected the different types of jobs within that field and compiled data to depict which jobs artificial intelligence contributes to and how much it does. In regards to the involvement of AI in society, the researcher chose a variety of activities in daily life and documented whether or not AI could accomplish it, and then what percentage of Americans today use AI to accomplish these tasks. The researcher then rated each category on a scale from one to four, measuring how extensively AI appears to be involved. A category where AI is only used for data storage may be given a score of a one while one where AI is involved in customer service as well would get a 3. The ratings on a scale are determined by how the guiding questions are answered using sources on each field. Each category is rated by each question and the average is what is compared in the study.

In retrospect, there were some factors of the study that if changed, would improve the result finding process. One limitation is that artificial intelligence is a relatively new technology and so there are many instances in where fields may not be experienced in the use of AI because of the unknown or feared risks (Chen, Chen, Cheng & Gong, 2020). Society often is wary of new technology and so some may be completely against the idea of using it. Another limitation is the expense of using AI. People or work fields may not be able to afford purchasing AI to make their lives convenient or their enterprises more modern (Vinueza et al., 2020). Fields with less funding or funding needed for other aspects may not view artificial intelligence as a necessity and therefore not use it. Conducting this study at a later time where there is more funding available and the technology is more widely accepted, would provide more accurate results.

ANALYZING THE RESULTS AND DISCUSSION

AI	1	2	3	4	Average
Virtual Assistant	3	3	4	2	3
Autonomous Vehicles	4	4	4	1	3.25
Navigation Systems	2	1.5	4	4	2.875

Table 2					
AI WITHIN HEALTHCARE					
AI	1	2	3	4	Average
Computer System	1	1	1	4	1.75
Automated Answering Systems	3	2	2	2	2.25
Programmable Surgical Machinery	4	4	4	1	3.25
Diagnosing Algorithms	4	4	4	1	3.25

Table 3					
AI WITHIN AGRICULTURE					
AI	1	2	3	4	Average
Environmental Analysis Equipment	4	1	4	4	3.25
Programmable Farming Equipment	4	4	4	1	3.25
Algorithmic Farming Instructions	4	2	4	3	3.25

In analyzing the results, it is clear that the more easily controlled forms of AI, the ones for data keeping, are more liked by the public while the more advanced ones are prone to criticism. Technologies with low opposition are more commonly applied and are likely used every day by most of the population. Computer systems are not opposed for data storage by a double-digit percentage population and the extent of their use is extreme. Almost 100% of companies and citizens who can afford it use technology to store their data and records. Virtual assistants, a newer form of AI technology with low opposition, also have a great impact on society with nearly 85% of Americans having a virtual assistant on their phones or within their homes through a speaker. Because the risk regarding a virtual assistant is lower, people are more likely to incorporate it into their daily lives. However, in regards to an autonomous vehicle, where a glitch could cause an accident and put lives at stake, the opposition is greater. Currently the extent of moderate use AI is very great. AI technologies where humans program and monitor its functions are used so that there is always a failsafe. With the growing use of technology in society it is likely that humans will trust AI more with greater tasks.

This is supported by study of Gil & Selman (2019) stated that the development of AI is increased in our daily lives and make our work more efficient. According to Jatobá, et al., (2019), the function of a computer is initially just to process data and show the results of data collection. However, technological advances today have improved the functionality of computers where not only can process data but also be able to provide more accurate results to users. This artificial intelligence technique helps computers process information like humans. Through this approach, efforts to make computers that can think like humans try to be developed. As a consequence, the involvement of various countries in leveraging AI technology is increasing from time to time. Now every country around the world is racing to develop AI technology and research (Nawi, 2019).

IMPLICATIONS, CONCLUSION AND FUTURE RESEARCH

The results of this study can be used to support the cause for increasing the use of artificial intelligence in more aspects of daily life. People often mistrust new technologies then become dependent on them after seeing them in action. The extent of AI used in modern days has increased significantly in the last two decades than it has throughout history.

Because this is such a new technology, the full possibilities of its use have not been discovered. Research contributed to how to safely develop AI is a necessity because it can contribute to current issues such as food growth and healthcare.

This study can be changed and manipulated to provide information on how people feel regarding the use of artificial intelligence. Creating a survey on the topic and providing it to employees in different sectors of the workforce or people in society can give researchers an idea of where the principle of AI stands in society today. That study can also be compared to a future one to analyze whether or not viewpoints of people change after becoming familiar with said technology.

This study was conducted to gain insight into how involved artificial intelligence is in today's society. It is important to understand this concept as its place in society is only going to increase and people need to be aware of that. There is still a percentage of people wary of technology and it is important for them to comprehend how far it is integrated into this world and its rate of growth. Overall, AI is involved in many activities humans take part in and aspects of the workforce, but it is not involved in everything. There are tasks that are not yet trusted to artificial intelligence, however that is quickly changing. Overall, it is clear to see that a time without artificial intelligence is nearly nonexistent in developed countries and that is reason for greater innovation to occur.

REFERENCES

- Agarwal, M., & Agarwal, S. (2020). Tragedy of errors- an analysis of human factor in medical errors. *Journal of Clinical & Diagnostic Research*, 14(7), 1-3.
- Armstrong, G. & Rahimy, E. (2019). The incoming wave of AI in retina: A look at both the potential benefits--and possible drawbacks--of artificial intelligence. *Review of Ophthalmology*, 26(11), 58-61.
- Byrum, J. (2018). Taking advantage of the AI revolution: An overview of what artificial intelligence can bring to society and businesses. *ISE: Industrial & Systems Engineering at Work*, 50(6), 28-32.
- Chang, J. (2020). 50+ Vital artificial intelligence statistics: 2019 & 2020 data analysis & market share. Retrieved from <https://financesonline.com/artificial-intelligence-statistics/>.
- Chen, X., Chen, J., Cheng, G., & Gong, T. (2020). Topics and trends in artificial intelligence assisted human brain research. *PloS one*, 15(4), e0231192.
- Engle, P. (2020). AI: Should we be excited or terrified? *ISE: Industrial & Systems Engineering at Work*, 52(4), 20.
- Freedman, D.H. (2018). Taking you out of the driver's seat. *Newsweek Global*, 171(18), 20-34.
- Gil, Y., & Selman, B. (2019). *A 20-year community roadmap for artificial intelligence research in the US*. arXiv preprint.
- Goodman, K., Zandi, D., Reis, A., & Vayena, E. (2020). Balancing risks and benefits of artificial intelligence in the health sector. *Bulletin of the World Health Organization*, 98(4), 230-230.
- Guzman, A.L., & Lewis, S.C. (2020). Artificial intelligence and communication: A Human-Machine Communication research agenda. *New Media & Society*, 22(1), 70-86.
- Huwaireb, J.B. (2018). Foreword. *Flashes Magazine*, 37, 5.
- In machines we trust? (2018). *Flashes Magazine*, 40, 46-49.
- Jane, Q. (2016). Research and development of artificial intelligence in China. *National Science Review*, 3(4), 538-541.
- Jatobá, M., Santos, J., Gutierriz, I., Moscon, D., Fernandes, P.O., & Teixeira, J.P. (2019). Evolution of artificial intelligence research in human resources. *Procedia Computer Science*, 164, 137-142.
- Korzep, K. (2010). The future of technology and the effect it may have on replacing human jobs. *Technology & Health Care*, 18(4/5), 353-358.
- Liu, S. (2019). Topic: virtual assistants. Retrieved from <https://www.statista.com/topics/5572/virtual-assistants/>.
- Nawi, A. (2019). Early exploration towards issues and impact the use of artificial intelligence technology towards human beings. *Asian Journal of Civilizational Studies (AJOCS)*, 1(4), 24-33.
- Paschen, U., Pitt, C., & Kietzmann, J. (2020). Artificial intelligence: Building blocks and an innovation typology. *Business Horizons*, 63(2), 147-155.
- Rachaniphorn, N. (2020). Artificial intelligence and its impacts on employability. *Human Behavior Development & Society*, 21(2), 51-62.
- Richards, H. (2020). Designing superior customer experiences. *KM World*, 29(3), S39.
- Smilansky, O. (2017). The real benefits of artificial intelligence. *CRM Magazine*, 21(11), 28-31.
- Smith, M.J. (2020). Getting value from artificial intelligence in agriculture. *Animal Production Science*, 60(1), 46-54.

- Subramaniam, A. (2020). AI-Powered customer service: Use-Cases and real-world examples. *KM World*, 29(3), S40.
- Tesfaye, L. (2020). The roadmap to enterprise Artificial Intelligence (AI). *KM World*, 29(3), 11.
- Topol, E.J. (2019). High-performance medicine: The convergence of human and artificial intelligence. *Nature medicine*, 25(1), 44-56.
- Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S., ... & Nerini, F.F. (2020). The role of artificial intelligence in achieving the sustainable development goals. *Nature communications*, 11(1), 1-10.
- Win, S., & Rivero, E. (2020). Virtual voice assistants. *Library Technology Reports*, 56(4), 1-40.
- Young, S. (2020). The future of farming: Artificial intelligence and agriculture. *Harvard International Review*, 41(1), 45-47.