JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

ARTIFICIAL INTELLIGENCE AS A POTENTIAL THREAT TO HUMAN JOB

[1] Omkar Gawas, [2] Asst. Prof. Swapna Ramesh,

[1,2]Keraleeya Samajam's Model College, Khambalpada Road, Thakurli, Dombivli (East)

Abstract: AI has been rapidly developed and adopted during the last half-century and has brought a dramatic change in several industries such as healthcare, finance, manufacturing, and transportation. Since the advancement of AI is useful in various sectors in improving efficiency, accuracy, and innovation, it is disadvantageous in that it threatens employment of human personnel. This paper aims at discussing how artificial intelligence can pose the threat to human jobs considering how it threatens to replace human workforce, which categories may be most affected, as well as the implications for the economy and society. Thus, this paper seeks to discuss the opportunities and threats of AI-automation by reviewing the current literatures and case studies so that it will be able to identify strategies of handling the negative effects of AI automation on the work force in the future.

Keywords:- Artificial Intelligence (AI), Job Displacement, Workforce Disruption, Automation, AI and Employment, Socio-economic Effects, AI Adoption, Job Security.

I. INTRODUCTION

Artificial Intelligence (AI) therefore, has emerged as significant innovation enhancing ramification in the various technological realms in the current society. Today, the use of machine learning, self-driving vehicles, virtual personal assistants, and robots that can predict how people behave – all these demonstrate how AI continues to grow at a very rapid pace. In the present years, as AI systems are more and more developed, they persistently become more able to accomplish functions that have traditionally required human cognition like problem solving, decision-making and creative processes. The adoption of AI across different industries means significant potential advantages to be derived from the implementation of such systems; these result in the enhancement of organizational efficiency, decrease in costs, as well as the successful resolution of intricate issues that may otherwise take longer to address. But this technological advancement also proves some issues related to job losses and unemployment due to such technologies. Some of the issues that emerge from the use of technology in handling tasks that were hitherto handled by humans are concerns such as job loss, income disparity, and the role of human beings middle of the end in view with growing advances in robotic- like or artificial intelligence technologies. In the past, technology always initiated what can be referred to as a "waves of automation" whereby some post got replaced by other newer ones. However, the vigor and versatility of AI-based technologies indicate that the current wave of automation could turn out to be more disruptive than the preceding waves of technological revolution. However, with current advancements in artificial intelligence, many jobs, particularly those that involve repetitive tasks, are at high risk of automation and the wheel of AI is slowly extending to form those careers that require brainstorming, critical thinking, and even emotions.

Automation of Routine Tasks

One more thing that is worth mentioning is that AI is very efficient when it comes to handling tasks that are monotonous and predictable in nature, which are usually handled by people or employees. For simplification, in a manufacturing unit, robots used on the assembly line are capable to do a superior job compared to human beings in a shorter period of time. In the same way, calculation, data-entry and customer support also have applications like 'bots and auto-generation tools that work tirelessly to do what formerly required human operatives. What is more, this trend is not only seen in low skilled jobs, as many people tend to believe. AI also can perform middle-skill jobs such as administrative jobs and clerical jobs which require routine tasks to be carried out on a consistent basis. For instance, AI can handle some clerical tasks like booking appointments or even other things like organizing appointments, data analysis among other tasks that used to be done by office employees.

Advanced Data Processing

This explains why AI is very efficient and accurate when it comes to handling and analyzing large volumes of data. In areas like accounts, finance and case law, data analysis using AI can be done with greater efficiency than through human beings. Self-learning applications can examine reports, explore the data, and even forecast market conditions, which considerably minimizes the demand for human specialists. For instance, in the legal profession, AI applications can help review documents, do research, and also help to draft a contract. The aforementioned capabilities not only rationalize processes but also decrease the necessity of paralegals and junior lawyers who usually perform these functions.

AI in Decision-Making

There is growing AI decision-making integration throughout the diverse industries and sectors. IN healthcare AI can help in diagnosis by analyzing images, data on patients and genetic data in cases of a disease outbreak. This can further increase the likelihood of an accurate diagnosis and individualized treatment; however, it also implies that a variety of diagnostic activities previously undertaken by healthcare professionals could be driven by AI. In the realm of finance, AI can be employed in dealing with algorithms that involve high frequency trading, risk evaluation, and issuing of decisions on investment. These systems can manage the great amount of data and perform the required transactions within milliseconds, thus showing better results than a live trader. Consequently, the professions of the financial analysts as well as traders are changing; they are moving toward educating and planning instead of executing.

Job Displacement across Sectors

Reasons why employment is influenced by AI: There are significant effects of AI in different industries. In manufacturing and production, smart machines are expected to eliminate workforce regardless to the type of contract whether it is permanent or temporary. Tesla is already committed to making self-driving cars become mainstream and Google is also working on the project and while attaining its goal is likely to cut cost and reduce accident rates, millions of people will lose their jobs. In agriculture, tractor-driving robots, drones and other intelligent machines are changing the landscape. Environmental control by using efficient models such as the automated tractors, system of crop monitoring using drones and mechanically assimilated harvesters have been able to take over tasks that would have earlier demanded a lot of manpower. These developments make production smoother, but also eliminate the labor force, particularly farm workers, especially from big agricultural companies.

Creation of New Job Categories

On a certain level AI is dangerous as it will threaten existing jobs but on the other hand it presents a new opportunity. To support AI technology, there is a need for a qualified workforce across AI systems' deployment life-cycle, including AI specialists, data scientists, and cybersecurity professionals. These new job categories may demand higher education and skills which means that existing workers in the potentially automatable jobs may find it difficult to transition to the new roles. AI can complement people, compensate for their weaknesses and produce more when combined with jobs that can be performed either by a person or an advanced software that has been developed. For instance, in the healthcare context, there is an ability to help doctors decide the possible diagnosis after doing numerous analyses, so, more challenging cases and patient care are the primary expertise of doctors. Although in creative fields people are utilized in creating content, music, and art, AI could be used as a tool that helps to improve this field and not replace the human being.

Impact on Low-Skill vs. High-Skill Jobs

Automat ability on the other hand is primarily dependent on the level of skill, where more routine and simpler tasks are easily automatable than complex and skilled jobs. Nevertheless, AI can still affect even those sectors of the economy which were previously thought to be safeguarded against this kind of influence by the use of skill-demanding equipment. For example, in the journalism industry, it is being employed to produce newspaper articles, in music to compose songs, and in art to draw. These progress allow for the discussion to happen around creative occupations and whether they are safe from automation. The primary point on which they vary is in the type of the tasks that their members carry out. Boring repetitive jobs with clear-cut well-defined processes are most vulnerable to being replaced; on the other hand, jobs that have components involving people interactions, complexities of decision-making, and social cognition are least likely to be displaced by AI. Still, based on the current AI capabilities, and as AI technology improves further, new classes, types and even forms of tasks are gradually moving further into the automatable domain.

Economic and Social Implications

Outsourcing is another key factor that comes with a displacement of jobs by automated systems which creates economic problems. Laid off employees may not have an easy time looking for another job to do, this is because they may lack the skills required in today's worlds of work. This can lead to high unemployment rates and income inequality since those with education and skills in the use of the systems affirmed by the AI empowered economy benefits more. However, the cases of job displacement are not randomly distributed throughout the economy since they are influenced by different geographic regions and sectors. In compounded ways, such a political ecology can aggravate social-economic cleavages and generate social unrest. It is therefore important for relevant policy makers and organizations to invest and mitigate on such impacts on the affected workers and society.

Need for Education and Training

Effectively, to minimize the rate of job loss due to the introduction of AI, people are in need of education and training programs that will enable them to shift to the new trends of employment. This is a highlight that calls for continuous learning and up skilling, especially concerning the nature of an economy that demands AI. That also includes such aspects as technical knowledge and practical abilities to solve the problem as well as personal skills like problem solving, creative thinking, and emotional intelligence, which cannot be reached by robots. It is therefore imperative that there should be collective effort from the governments, schools and colleges, various corporate entities to develop affordable and accessible training provisions. This involves efforts of teaching and training those who are at risk of losing jobs due to the encroachment of AI, and efforts to make school and universities include the next generation of jobs in the market.

Policy and Regulatory Considerations

The governments and organizations require formulating policies that would help them address the issues connected with the employment through the AI. It involves getting policies that would likely help those threatened by automation, like compensations including unemployment subsidies, retraining sessions, and vocational training. Policies should also guarantee equal education and training for employment to give everyone an equal chance of benefiting from an AI-based economy. Another

important point is the need for the regulation of artificial intelligence deployment and development, so the technology cannot be used maliciously or against the principles of ethics. This includes; Promotion of codes of conduct about the application of AI such as the principle of transparency, accountability, and fairness in the AI system; Promotion of workers' rights etiquette and non-discrimination etiquette in the application of AI.

II. RESEARCH METHODOLOGY

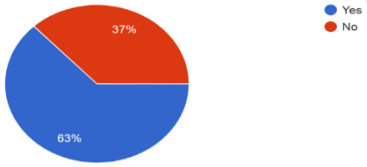
Hybrid model is an Examples may include descriptive and analytical content. Descriptive models can examine the relationship between relationships and conclusions drawn for the system's reasoning. But the results of the analysis actually differ from the chemical studies of substances in the body. We first surveyed people using an online survey and data collection service to learn about people's experiences.

III. PUBLIC SURVEY: QUESTIONNAIRE:

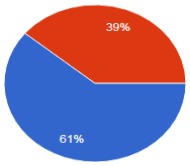
1. Do you think AI technology can create problems for human jobs?
2. Are you concerned AI could lead to widespread job displacement in certain industries?
3. Do you think AI will create opportunities that can be eliminated in the long run?
4. Do you know about the specific industries where ai adoption has already led to job losses?
5. Do you believe that AI will primarily affect low-skilled or routing jobs?
6. Are there certain job roles that you think AI is particularly well-suited to replace?
7. Are you confident that employees can adapt and acquire new skills to remain relevant in an AI-driven economy?
8. Do you think governments should implement policies to regulate AI adoption to protect jobs?
9. Are there ethical concerns related to the impact of AI on employment that need to be addressed?
10. Overall, do you believe that society is adequately prepared to address the potential job impacts of AI?

RESULT:

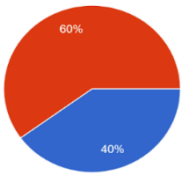
When we asked people do you think AI technology can create problems for human jobs? 63% people said yes and 37% people said no.



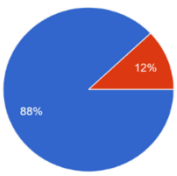
When we asked people have Are you concerned AI could lead to widespread job displacement in certain industries? 61% people said yes and 39% people said no.



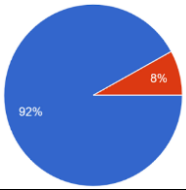
When we asked people do you think AI will create opportunities that can be eliminated in the long run? 60% people said yes and 40% people said no.



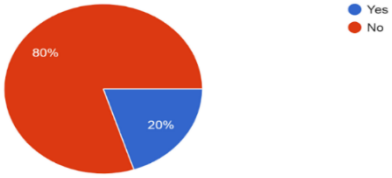
When we asked people do you know about the specific industries where ai adoption has already led to job losses? 88% people said yes and 12% people said no.



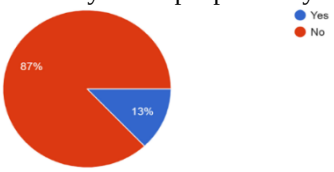
When we asked people do you believe that AI will primarily affect low-skilled or routing jobs? 92% people said yes and 8% people said no.



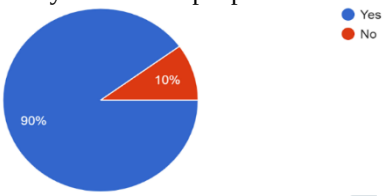
When we asked people are there certain job roles that you think AI is particularly well-suited to replace? 20% people said yes and 80% people said no.



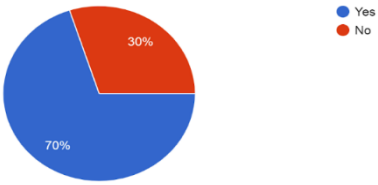
When we asked people are you confident that employees can adapt and acquire new skills to remain relevant in an AI-driven economy? 13% people said yes and 87% people said no.



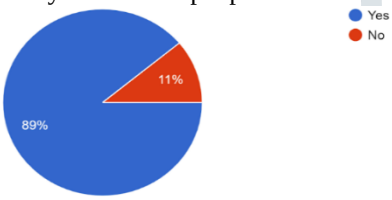
When we asked people do you think governments should implement policies to regulate AI adoption to protect jobs? 90% people said yes and 10% people said no.



When we asked people are there ethical concerns related to the impact of AI on employment that need to be addressed? 70% people said yes and 30% people said no.



When we asked people do you believe that society is adequately prepared to address the potential job impacts of AI? 89% people said yes and 11% people said no.



IV. HYPOTHESIS TESTING

Hypothesis testing is a kind of statistical reasoning that includes analyzing data from a sample to originate implications about a population parameter or probability distribution. First, a hypothesis is created concerning the parameter or distribution. This is known as the null hypothesis, shortened as H0. After that, another hypothesis (denoted Ha) is defined which is the polar conflicting of the null hypothesis. Using sample data, the hypothesis testing method determines whether or not H0 may be rejected. The statistical conclusion is that the other hypothesis Ha is true if H0 is rejected.

For this paper:

Null hypothesis (H0): Artificial intelligence is not the potential Threat to human job.

Alternative hypothesis (Ha): Artificial intelligence is truly the biggest Problem to human job and need to fix it.

1. Chi-squared test
2. T-student test (T-test)
3. Fisher's Z test

We will use 2 tailed t-test.

A t-test is an inferential statistic that controls if there is an important difference in the means of two collections that are related in some manner.

Level of significance a significance level of 0.05, for example, means there's a 5% probability of discovering a difference when there isn't one. Low significance levels indicate that more indication is required to reject the null hypothesis.

Level of confidence the confidence level indicates the probability that the location of a statistical parameter measured in a sample survey is also true for the entire population.

SR. No	Data
1	63
2	61
3	60
4	88
5	92
6	80
7	87
8	90
9	70
10	89
Mean(x)	**78**
Standard Deviation (s)	**4.37**

Level of significance = 0.05 i.e. 5% Level of confidence = 95%
The chances of rejecting the null hypothesis whether is true the significance level.
A t-score (t-value) is the number of normal deviations away from the t-mean distributions.
The formula to find t-score is: $t = (x- \mu) / (s/ \sqrt{n})$
When x is the sample mean, μ is the hypothesis mean, s is the sample standard deviation, and n is the example size. The p-value, also known as the probability value, indicates how probably your data is to have happened under the null hypothesis. Once we know the value of t, we can find the corresponding p-value. If the p-value is less than alpha level (choices are .01, .05, and .10) then we can reject null hypothesis and accomplish that
Calculating t-value:
Step 1: Determine what the null and alternative hypotheses are.
Null hypothesis (H0): Artificial intelligence is not the potential Threat to human job.
Alternative hypothesis (Ha): Artificial intelligence is truly the biggest Problem to human job and need to fix it.
Step 2: Find the test statistic.
In this case, the hypothesized mean value is consider 0.
$t = (x- \mu) / (s/ \sqrt{n}) = (78-0) / (4.37 / \sqrt{10})$
T-value = 56.44
Calculating p-value:
Step 3: Calculate the test statistic's p-value.
The t-Distribution with n-1 degrees of liberty is used to analyze the p-value. In this paper, the sample size is n =10, so n-1 = 9.
By working the observe value in the calculator, it returns a p-value. In this case, the p-value returned is less than 0.00001. Then this p-value is less than chosen alpha level of 0.05, we can reject the null hypothesis. Thus, we have sufficient evidence to say that Artificial intelligence is not the potential Threat to human job.

V. FINDINGS

1. AI can efficiently handle repetitive tasks in manufacturing, data entry, and customer service, leading to reduced demand for human workers in these roles.
2. AI's ability to quickly analyze large datasets threatens jobs in fields such as accounting, financial analysis, and legal research, where data-driven tasks are predominant.
3. AI systems are increasingly involved in decision-making in sectors like healthcare and finance, potentially reducing the need for human professionals in diagnostic and trading roles.
4. Industries such as transportation, logistics, and agriculture are seeing significant job displacement due to AI-powered self-driving vehicles, drones, and automated machinery.
5. While AI eliminates certain jobs, it creates new opportunities in AI development, maintenance, and oversight, demanding advanced skills and training.
6. Low-skill jobs are more susceptible to automation. High-skill jobs requiring creativity and complex problem-solving are less at risk, but still impacted as AI capabilities grow.
7. Job displacement due to AI can increase unemployment rates and economic disparities, particularly affecting those without access to education and retraining programs.
8. There is a crucial need for education and up skilling programs to help workers transition to new roles in an AI-driven economy, emphasizing lifelong learning and adaptability.

VI. CONCLUSION

AI presents both opportunities and challenges for the job market. While it can lead to increased efficiency and the creation of new industries, it also poses a significant threat to many traditional jobs. Proactive measures, including education, training, and policy development, are crucial to managing the transition and ensuring that the workforce can adapt to the changing economic landscape. By addressing these challenges, society can harness the benefits of AI while minimizing its potential negative impact on employment.

VII. REFERENCES

[1]https://www.nexford.edu/insights/how-will-ai-affect-jobs
[2]https://www.igcb.com/news/is-ai-a-threat-to-human-jobs/
[3]https://economictimes.indiatimes.com/jobs/hr-policies-trends/ai-a-bigger-threat-than-automation-to-millions-of-job-seekers/articleshow/100038528.cms?from=mdr
[4]https://www.cbsnews.com/news/what-is-generative-ai-job-exposur