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# A Role of Artificial Intelligence and its Impact on Employability and Society in 21st Era

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***Abstract:*** ***Artificial Intelligence (AI) has the potential to reshape the global economy, especially in the realm of labour markets. As AI is starting to gain popularity in the modern digital age, an interesting and crucial question is asked: what changes will artificial intelligence bring to the work industry? In this research, we will view AI from both a positive and negative perspective to consider what it can do for the future of society. Our research encompasses the trade-offs and the effects the implementation of AI in work industries will bring. Recognizing how AI will change our workforce will be an important question to answer in the upcoming years of technological innovation. It prompts crucial questions about the evolving roles of humans as machines gain cognitive capabilities, particularly in leadership, decision-making, and strategy.***
***Keywords: Artificial Intelligence, global economy, future of society, leadership, decision-making.***

## I. INTRODUCTION

Artificial Intelligence is an ever-growing field that is changing the way we live, work, and interact with one another. From personal assistants like Siri and Alexa to self-driving cars, AI is already transforming our daily lives, providing new possibilities and opportunities to improve our standard of living. However, the rapid growth of AI also raises concerns about its impact on society and the potential consequences of its widespread adoption. As AI technology continues to advance, it is being used more and more to solve complex problems, automate routine tasks, and augment human capabilities. This has the potential to bring about many benefits, such as increased productivity and efficiency, improved healthcare outcomes, and better decision-making. However, the development and implementation of AI also raise important ethical, social, and economic issues that need to be addressed. For example, the widespread adoption of AI could lead to significant job displacement, particularly in sectors that are highly susceptible to automation. This could exacerbate existing economic inequalities and create new challenges for workers who may not have the skills needed to transition to new jobs.

Artificial Intelligence (AI) has a profound impact on society, with both positive and negative effects. Here's an overview of some key areas:

### *A. Positive Impacts*

1) Healthcare: AI improves diagnostics, predicts patient outcomes, and personalizes treatment plans.
2) Education: AI-powered tools provide personalized learning experiences and assist teachers.
3) Economic Growth: AI automates repetitive tasks, increasing productivity and creating new industries.
4) Transportation: Autonomous vehicles and traffic management systems reduce accidents and improve efficiency.
5) Environment: AI helps in climate modeling, wildlife conservation, and optimizing energy consumption.

### *B. Negative Impacts:*

1) Job Displacement: Automation threatens certain jobs, especially in manufacturing and low-skill sectors.
2) Privacy Concerns: AI can infringe on personal privacy through data collection and surveillance.
3) Bias and Discrimination: AI systems can perpetuate existing biases if not properly designed.
4) Security Risks: AI can be used maliciously, such as in cyber-attacks or autonomous weaponry.
5) Ethical Concerns: Decisions made by AI can sometimes be opaque and raise ethical questions.

Balancing the benefits and challenges of AI is crucial for its responsible development and integration into society. If there's a specific area you're interested in, I'd be happy to dive deeper into that topic.

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Artificial intelligence (AI) is one of the core areas of the fourth industrial revolution, along with the transformation of the mechanical technology, electric power technology, and information technology, and it serves to promote the transformation and upgrading of the digital economy industry.

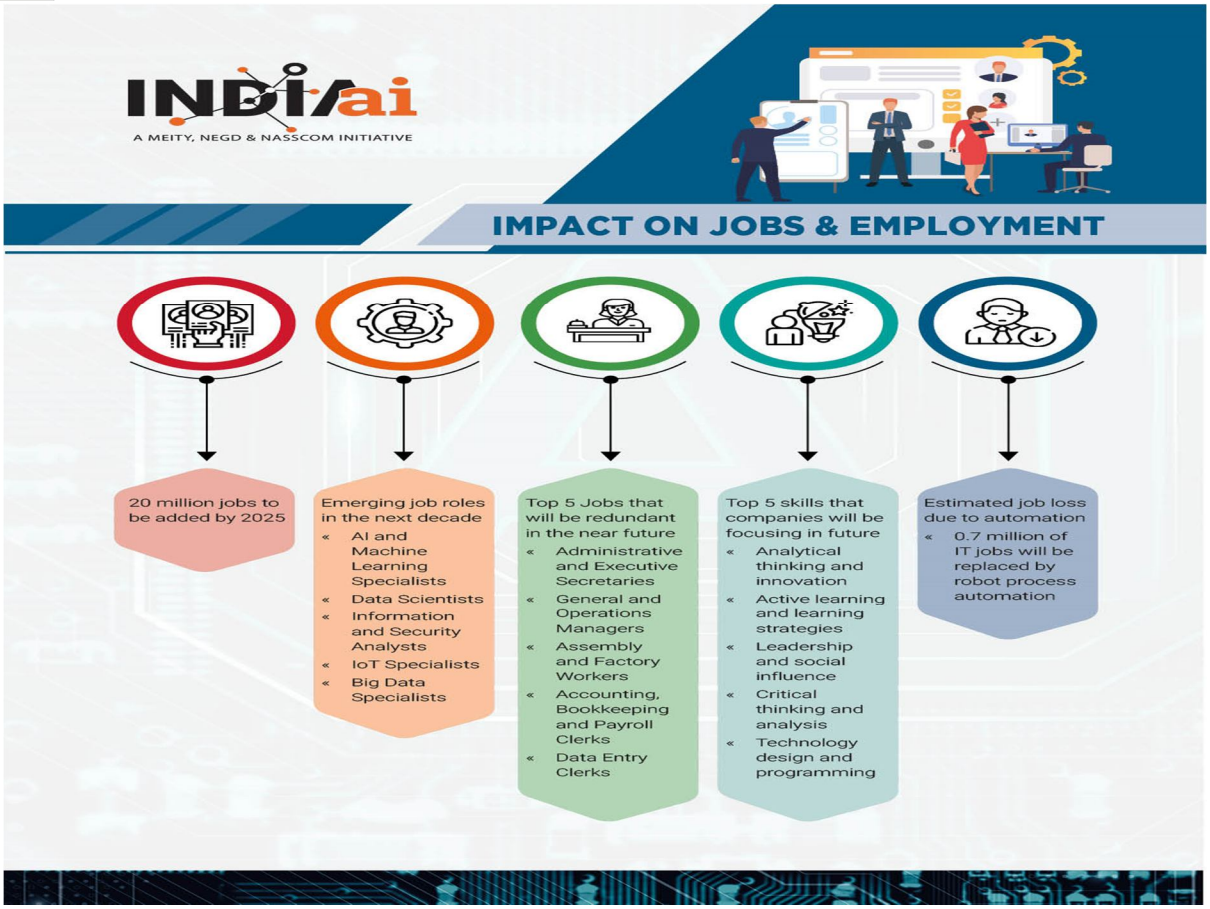
Indeed, the rapid iteration and cross-border integration of general information technology in the era of the digital economy has made a significant contribution to the stabilization of employment and the promotion of growth, but this is due only to the "employment effect" caused by the ongoing development of the times and technological progress in the field of social production. Digital technology will inevitably replace some of the tasks that were once performed by human labour. In recent years, due to the influence of China's labour market and employment structure, some enterprises have needed help in recruiting workers. Driven by the rapid development of artificial intelligence technology, some enterprises have accelerated the pace of "machine replacement," resulting in repetitive and standardized jobs being performed by robots. Deep learning and AI enable machines and operating systems to perform more complex tasks, and the employment prospects of enterprise employees face new challenges in the digital age. According to the Future of Jobs 2020 report released by the World Economic Forum, the recession caused by the COVID-19 pandemic and the rapid development of automation technology are changing the job market much faster than expected, and automation and the new division of labour between humans and machines will disrupt 85 million jobs in 15 industries worldwide over the next five years. The demand for skilled jobs, such as data entry, accounting, and administrative services, has been hard hit. Thanks to the wave of industrial upgrading and the vigorous development of digitalization, the recruitment demand for AI, big data, and manufacturing industries in China has maintained high growth year-on-year under the premise of macroenvironmental uncertainty during the period ranging from 2019 to 2022, and the average annual growth rate of new jobs was close to 30%. However, this growth has also aggravated the sense of occupational crisis among white-collar workers. The research shows that the agriculture, forestry, animal husbandry, fishery, mining, manufacturing, and construction industries, which are expected to adopt a high level of intelligence, face a high risk of occupational substitution, and older and less educated workers are faced with a very high risk of substitution (Wang et al. 2022). Whether AI, big data, and intelligent manufacturing technology, as brand-new forms of digital productivity, will lead to significant changes in the organic composition of capital and effectively decrease labour employment has yet to reach consensus. As the "pearl at the top of the manufacturing crown," a robot is an essential carrier of intelligent manufacturing and AI technology as materialized in machinery and equipment, and it is also an important indicator for measuring a country's high-end manufacturing industry. Due to the large number of manufacturing employees in China, the challenge of "machine substitution" to the labour market is more severe than that in other countries, and the use of AI through robots is poised to exert a substantial impact on the job market (Xie et al. 2022). In essence, the primary purpose of the digital transformation of industrial enterprises is to improve quality and efficiency, but the relationship between machines and workers has been distorted in the actual application of digital technology. Industrial companies use robots as an entry point, and the study delves into the impact of AI on the labour market to provide experience and policy suggestions on the best ways of coordinating the relationship between enterprise intelligent transformation and labour participation and to help realize Chinese-style modernization.

## II. LITERATURE REVIEW

According to The India Express, around 20 million jobs are to be added by 2025 around artificial intelligence. These numbers are due to the promising response and latest innovations in technology in every imaginable field. From disease detection, mental health counselling, weather forecasting, crop predictions, studies, designing, urban city planning, sewage systems, traffic planning, disaster management, and fashion and space research. AI has touched it all.

According to World Economic Forum, AI will create specific job roles in the coming decades, such as AI and Machine Learning Specialists, Data Scientists, Information and Security Analysts, IoT Specialists, Big Data Specialists. There are various training programs and initiatives by governments to skill and prepare people for upcoming job roles around AI.

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The pandemic has fostered the rapid adoption of new technologies at work, as physical distancing became the norm (Soto-Acosta, 2020; Kutnjak, 2021; Mihalca et al., 2021; Liu et al., 2021; Mishchuk et al., 2023). The pace of adoption was unprecedented (Papagiannidis et al., 2020; Kolo & Zuva

According to Schumpeter's innovation theory, within a unified complex system, the essence of technological innovation forms from the unity of positive and negative feedback and the oneness of opposites such as "revolutionary" and "destructive." Even a tiny technological impact can cause drastic consequences. The impact of AI on employment is different from the that of previous industrial revolutions, and it is exceptional in that "machines" are no longer straightforward mechanical tools but have assumed more of a "worker" role, just as people who can learn and think tend to do (Boyd and Holton 2018). AI-related technologies continue to advance, the industrialization and commercialization process continues to accelerate, and the industry continues to explore the application of AI across multiple fields. Since AI was first proposed at the Dartmouth Conference in 1956, discussions about "AI replacing human labor" and "AI defeating humans" have endlessly emerged. This dynamic has increased in intensity since the emergence of ChatGPT, which has aroused people's concerns about technology replacing the workforce. Summarizing the literature, we can find three main arguments concerning the relationship between AI and employment

## III. LITERATURE REVIEW

Artificial Intelligence (AI) has emerged as a transformative force in contemporary society, touching upon various aspects of our lives and reshaping the landscape of technology, industry, and culture. This section provides an overview of key findings and insights from existing literature, emphasizing the multifaceted impact of AI on society.

### *A. Economic Implications of AI*

AI's economic implications are a central theme in the literature. Brynjolfsson and McAfee (2014) argue that AI, as part of the Second Machine Age, has the potential to drive economic growth through automation and increased productivity.

However, this optimism is tempered by concerns raised by Frey and Osborne (2017), who highlight the susceptibility of jobs to computerization, particularly in routine tasks. The resultant job displacement and shifts in labor markets are complex issues requiring careful policy considerations.

*B. Social Transformations*

The social implications of AI are profound. AI's ability to enhance healthcare outcomes is a subject of great interest. Muller (2017) points out the potential for AI to improve patient care through predictive analytics and personalized treatments. Furthermore, AI's role in education is evolving. Kelleher et al. (2015) suggest that AI- driven personalized learning experiences have the potential to revolutionize education by adapting to individual student needs.

*C. Ethical Considerations*

As AI becomes increasingly integrated into society, ethical concerns have surfaced. Hernández-Orallo (2018) highlights the importance of evaluating machine intelligence ethically. Issues related to bias, fairness, and transparency are of paramount concern. The literature underscores the need for ethical frameworks and guidelines to govern the development and deployment of AI systems, ensuring they align with societal values.

*D. Challenges and Risks*

While AI offers substantial benefits, it also poses challenges and risks. The literature review reveals that AI's potential for job displacement raises concerns about economic inequality. Addressing this issue may require a concerted effort to reskill the workforce for jobs that AI cannot perform. Additionally, the perpetuation of bias and discrimination by AI systems is a pressing concern, emphasizing the importance of responsible AI development and regulation.

*1) Theoretical frame work*

machine learning, big data, artificial intelligence, and other technologies, a new generation of intelligent robots that can perform routine, repetitive, and regular production tasks requiring human judgement, problem-solving, and analytical skills has emerged. Robotic process automation technology can learn and imitate the way that workers perform repeated new tasks regarding the collecting of data, running of reports, copying of data, checking of data integrity, reading, processing, and the sending of emails, and it can play an essential role in processing large amounts of data (Alan 2023). In the context of an informatics- and technology-oriented economy, companies are asking employees to transition into creative jobs. According to the theory of the combined task framework, the most significant advantage of the productivity effect produced by intelligent technology is creation of new demands, that is, the creation of new tasks (Acemoglu and Restrepo 2018). These new task packages update the existing tasks and create new task combinations with more complex technical difficulties. Although intelligent technology is widely used in various industries, it may have a substitution effect on workers and lead to technical unemployment. However, with the rise of a new round of technological innovation and revolution, high efficiency leads to the development and growth of a series of emerging industries and exerts job creation effects. Technological progress has the effect of creating new jobs. That is, such progress creates new jobs that are more in line with the needs of social development and thus increases the demand for labour (Borland and Coelli 2017). Therefore, the intelligent development of enterprises will come to replace their initial programmed tasks and produce more complex new tasks, and human workers in nonprogrammed positions, such as technology and knowledge, will have more comparative advantages.

The IT industry in India has been a major employer, providing over 5.4 million jobs and creating numerous opportunities for fresh engineering graduates. However, the rise of AI poses challenges to this landscape.

As companies work to become "AI-ready" through employee reskilling, technologists warn of a potential white-collar recession in India by 2027.

AI will also affect blue-collar jobs in India, impacting about 300 million workers in sectors like manufacturing and healthcare. While advanced robotics may automate some tasks, mass job losses are unlikely, as AI is expected to enhance productivity rather than replace workers entirely.

- AI Transforming Sectors

AI is reshaping various sectors in India, enhancing efficiency, improving services, and transforming customer experiences in sectors such as services, healthcare, industry and finance.

The Economic Survey 2023-24 highlights the varying impacts of AI across different sectors of the economy. The manufacturing sector is relatively less affected by AI, as industrial robots lack the flexibility and cost-effectiveness of human labor. While automation is present, it does not significantly displaced workers.

- Service Sector

The service sector is witnessing substantial AI adoption, particularly in customer service through the use of chatbots and virtual assistants. AI-powered chatbots such as Amazon India's Alexa-powered voice assistant are revolutionizing customer support by providing instant responses and personalized interactions enabling customers to shop, track orders, and get product recommendations through voice commands. This not only improves customer experiences but also streamlines operations and optimizes resource allocation, allowing businesses to operate more efficiently.

- Healthcare Sector

In the Indian healthcare industry, AI is making significant strides. AI-driven diagnostic tools, medical imaging analysis, and predictive analytics are enhancing the accuracy and efficiency of healthcare services. Moreover, AI-powered telemedicine platforms are improving access to healthcare in rural and remote areas, addressing the challenge of healthcare delivery in a vast and diverse country like India. By leveraging AI, the healthcare sector can provide timely and effective services, ultimately benefiting patients and practitioners alike. An Indian government-developed app Aarogya Setu using AI that provided COVID-19 information.

- Financial Sector

The financial sector is rapidly embracing AI technologies such as HDFC Bank's Eva AI powered-chatbot, for various applications, including fraud detection, risk assessment, credit underwriting, and personalized financial services. AI algorithms can analyze vast amounts of data in real-time, enabling financial institutions to make informed decisions quickly and efficiently. As a result, the demand for AI experts in finance is growing, as companies seek to leverage AI's capabilities for better risk management and enhanced customer experiences.

New Opportunities for Job Creation

As AI continues to infiltrate various industries, the employment landscape is undergoing a significant transformation. Rather than simply replacing jobs, AI is reshaping existing roles and creating new opportunities. The World Economic Forum (WEF) anticipates that AI will generate 12 million more jobs than it displaces by 2025.

According to the 2019 report by the Ministry of Electronics and Information Technology (MeitY), by 2025, digital interventions, including AI, are projected to redeploy approximately 40-45 million workers in India through retraining and reskilling. Furthermore, around 20 million new jobs are expected to be created, particularly in sectors such as IT-BPM, manufacturing, agriculture, and transport and logistics.

According to a 2020 report by NASSCOM, AI and data could contribute between USD 540 billion to 500 billion to India's GDP by 2025. Approximately 45% of this value is expected to come from three key sectors: consumer goods and retail, agriculture, and banking and insurance. Additional sectors that will also contribute include telecom, media and IT, energy, transport and logistics, auto manufacturing and assembly, and healthcare.

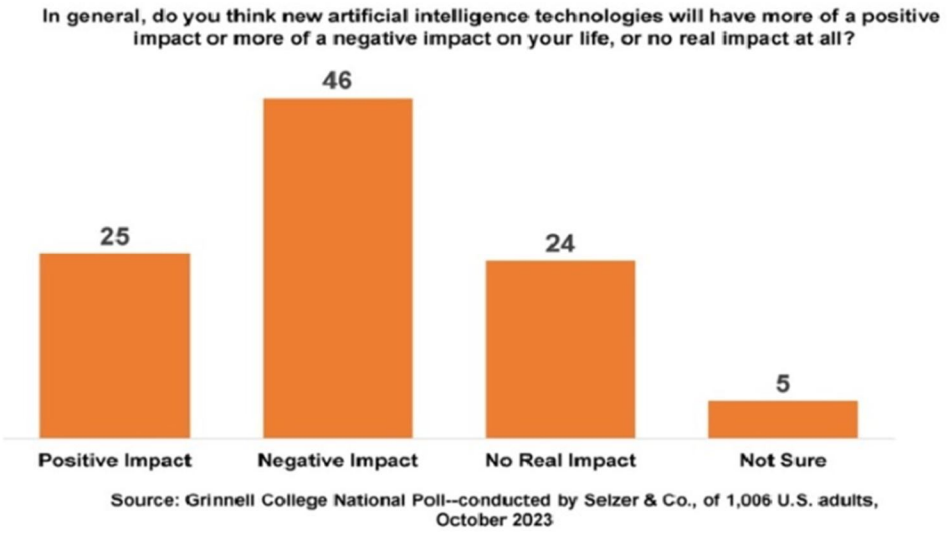
While routine and repetitive tasks are more susceptible to automation, the introduction of AI often leads to the redefinition of job roles. Employees are increasingly collaborating with AI systems to enhance productivity and efficiency, allowing them to focus on more complex and engaging tasks.

The integration of AI into workplaces necessitates a workforce equipped with new skills. There is a growing demand for expertise in fields such as data science, machine learning, and AI development, resulting in new job opportunities focused on managing, maintaining, and advancing AI technologies.

AI serves as a force multiplier, enabling humans to concentrate on higher-order tasks that require creativity, critical thinking, and emotional intelligence. Instead of replacing workers, AI augments human capabilities, leading to a more dynamic and productive workforce.

AI can change job roles and even completely get rid of them when implemented in an environment. Artificial intelligence can bring about positive change, removing unnecessary labor that requires human attention and making the workplace more efficient. At the same time, AI can bring creativity into the workforce, allowing people to use the tools of the computer to create more intricate, original ideas with the help of brainstorming through the use of AI. This tool also needs to be constantly updated and maintained by people who know how to program it, which brings new jobs to the table. But, some negatives surround this idea. As AI grows more capable of completing difficult tasks, jobs held by people to complete those tasks may no longer exist.

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*1)* How Will AI Affect Jobs - How many jobs will AI replace by 2030

Artificial intelligence (AI) could replace the equivalent of 300 million full-time jobs, a report by investment bank **Goldman Sachs** says. It could replace a quarter of work tasks in the US and Europe but may also mean new jobs and a productivity boom. And it could eventually increase the total annual value of goods and services produced globally by 7%. The report also predicts two-thirds of jobs in the U.S. and Europe "are exposed to some degree of AI automation," and around a quarter of all jobs could be performed by AI entirely.

Researchers from the University of Pennsylvania and OpenAI found some educated white-collar workers earning up to $80,000 a year are the most likely to be affected by workforce automation.

**Forbes** also says that According to an MIT and Boston University report, AI will replace as many as two million manufacturing workers by 2025.

A study by the **McKinsey Global Institute** reports that by 2030, at least 14% of employees globally could need to change their careers due to digitization, robotics, and AI advancements

*2)* What jobs are most likely to be automated?

*a)* Customer service representative

Most human customer service interactions are no longer done by phone with human employees manning the lines. Most of the time, the queries and problems of customers are repetitive. Answering these queries does not require high emotional or social intelligence. Therefore, AI can be used to provide automated responses to frequently asked questions.

*b)* Receptionists

The majority of companies across the world are now using robots at their reception. Even the calls are being managed by AI now. For example, AimeReception can see, listen, understand, and talk with guests and customers.

*c)* Accountants/Bookkeepers

Many companies are now using automation and ai for their bookkeeping practices. AI-powered bookkeeping services provide an efficient accounting system and flexibility and security, considering that they are available as cloud-based services. Using ai algorithms, AI will ensure the data is collected, stored, and analyzed correctly. Using an AI accounting service is significantly less costly than paying an employee's salary to do the same job.

*d)* Salespeople

Gone are the days when corporations required salespeople for advertising and retail activities. Advertising has shifted towards web and social media landscapes. The built-in target marketing capabilities in social media allow advertisers to create custom content for different types of audiences.

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*e)* Research and analysis

The fields of data analysis and research are areas that already implement the use of artificial intelligence as a method of streamlining the process and identifying new data without human assistance. The processing power of modern computers allows for the efficient sorting, extrapolation and analysis of data. As artificial intelligence continues to improve, there may not be a need for humans to play a role in data analysis and research.

*f)* Warehouse work

Online sales is a steadily growing industry and comes with an increasing need for processes and automated systems that efficiently get orders onto trucks for delivery. One area of focus for streamlining the process has been the use of automation. Basic automation and artificial implementation in a warehouse allow for easy access to computerized systems to locate packages and direct staff, and future AI may even perform mechanized retrieval and loading to increase shipping capacities.

*g)* Insurance underwriting

When making assessments on the viability of insurance applicants, the most important work is often in analyzing the data available and applying it within a set of formulas or structures. Automation can easily complete these tasks and is continually adapting to perform more complicated duties, which may reduce how many underwriters a company requires.

*h)* Retail

Self-checkout stations at stores are an example of automation in the retail sphere and have gained prominence in grocery stores and big-box outlets. When a company makes use of self-checkout areas, it results from a cost-benefit analysis. Although allowing customers to scan their own items can increase the instances of theft, the company saves more money by reducing the need for employees working registers.

*3)* How to quickly change career

Experts say that ai and machine learning will help workers by creating more occupations than it replaces. That said, in order to ride the wave and build a new career, you have to have procured the skills necessary to get the job done. If you're exposed to ai and looking to pivot into an AI-focused role, demonstrating your knowledge and experience with AI development can give you an edge.

Which jobs will not be replaced by ai?

It is widely touted that ai will create more jobs than it replaces. Further to that, many in certain industries will breath a sigh of relief that ai will not threaten their vocation and livelihood. These are some of the jobs that will not involve repetitive tasks and be prone to disruption. This means that ai will not replace those that perform them in the open labor market.

*a)* Teachers

Teachers often represent a reference point for many of us. Often, our academic decisions are partly based on how inspiring a particular teacher has been with us in the years prior. For all these reasons, it is almost impossible that we will have a fully digital teaching experience in the Future.

*b)* Lawyers and judges

These positions have a strong component of negotiation, strategy and case analysis. A lot is based on the personal experience and knowledge of each specialist. It requires a certain set of skills to be able to navigate complex legal systems and argue in defense of a client in court. There is a human factor involved when it comes down to consider all the various aspects of a trial and take a final decision that could turn into years in prison, in the case of a Judge.

*c)* Directors, Managers and CEOs

Managing teams inside an organization is a matter of Leadership and this is not a stack of behaviors that can be written down in a code and processed in a linear way. A CEO is also the person responsible for sharing the company's mission and value down to the team. It is very unlikely that investors will ever feel comfortable investing in a company managed by robots or algorithms.

*d)* HR Managers

Although ai does assist in the hiring process to make sifting through CVs so much easier and quicker, Human Resource Managers still cover a variety of very important tasks inside an organization. Hiring new professionals is just part of their prerogatives. They also are a key position inside the organization for maintaining the staff motivated, detecting early-on signs of discontent, and manage them if possible.

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*e)* Psychologists and Psychiatrists

Although a lot of face recognition technology is currently being used to develop initial AI counseling care and support, given the growing demand, mental health is a very delicate topic. Human touch is essential when it comes down to supporting people to succeed in their lives in all of the aspects that it can entail.

*f)* Surgeons

For sure, technology has seriously increased the accuracy with whom we are today able to diagnose and detect diseases in any medical report. Micro robotics also enhance the precision of the surgeons when it comes down to operation, enabling less invasive procedures. But being a surgeon requires the ability to connect with the patient on so many other different levels while taking a vast number of the factor under consideration at the same time. Experience, knowledge, and skills acquired throughout the years are all factors that need to be condensed in a matter of minutes during an operation.

*g)* Computer System Analysts

No matter how automated we become, there will always be the need of a human presence that can run maintenance work, update, improve, correct, and set-up complex software and hardware systems that often require coordination among more than one specialist in order to properly work. Reviewing the system capabilities, controlling the workflow and schedule improvements and increase automation is only part of a Computer System Analyst, a profession that is a great demand in the last years.

*h)* Artists and writers

Writing especially is such an imaginative fine art, and being able to place a specific selection of words in the right order is definitely a challenging endeavor. So even if AI technically would have the capacity of absorbing the content of most books in the world, in probably any language and come up with a somewhat personal style of communication, the magic and thrill of creating art with words is something that is pretty much going to rest in our domain of competition in the years to come.

*4)* How to embrace AI and learn skills to take advantage of this new technology

You may be wondering how you can start familiarizing yourself with AI in your work to help advance your career. LinkedIn says that the good news is that you probably already have experience with AI whether you know it or not. Asking voice assistants like Alexa and Siri questions uses AI, for example. Plenty of the apps on your phone also use AI, too. Generative AI, which is taking up all the headlines lately, is really the next step for this technology.

The company went on to say that to stay ahead in the era of artificial intelligence, it is essential to develop new skills and adapt to the changing job market. Here are some strategies for staying ahead in the era of artificial intelligence:

*a)* Embrace lifelong learning

In the era of AI, it is important to be constantly learning and adapting to new technologies and ways of working. This means taking courses, attending workshops and conferences, and keeping up-to-date with the latest trends in your industry.

*b)* Develop soft skills

While AI is great at performing routine tasks, it is still far from replicating human emotional intelligence and creativity. Developing soft skills such as communication, problem-solving, and collaboration will be crucial in the era of AI.

*c)* Be agile

In the era of AI, the ability to adapt quickly to changing circumstances will be key. This means being willing to learn new skills, take on new responsibilities, and pivot to new career paths.

*d)* Specialize

As AI becomes more ubiquitous, there will be increasing demand for workers with specialized skills and knowledge. By developing expertise in a particular area, you can increase your value to employers and differentiate yourself in the job market.

Learn from a next-gen university which embraces change

If there is one word that you need to take out of the way to transition from the current job market to the new world order of the job market affected by ai, is the word, 'agility'. The other is 'skills' and skills development at that.

Besides learning on the job, which can take a long time and effort for all concerned, many of those looking to switch careers or start a new one, are looking to online next-gen universities that can pivot on a penny and offer the programs at a specific period in time to take advantage of the drive to greater numbers of ai related jobs.

.Doing the degree will mean that learners will learn and develop skills based on the latest employer needs and market trends – this is what the 100% online learning university calls their Workplace Alignment Model which is designed to equip those learners with the skills needed and what employers are looking for.

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## IV. CONCLUSION

The neigh sayers have seemingly concluded that ai will take millions of jobs and put people out into the street, whilst those that are excited for it and ready to embrace the change are saying that ai has the ability to create more new types of jobs than it replaces.

That said, it would appear that resistance is futile, and that people must accept that artificial intelligence is becoming a part of our everyday lives. Every job role should embrace it, considering the efficient and cost-effective solutions it brings. It lets people focus on more creative goals by automating the decision-making processes and tedious tasks.

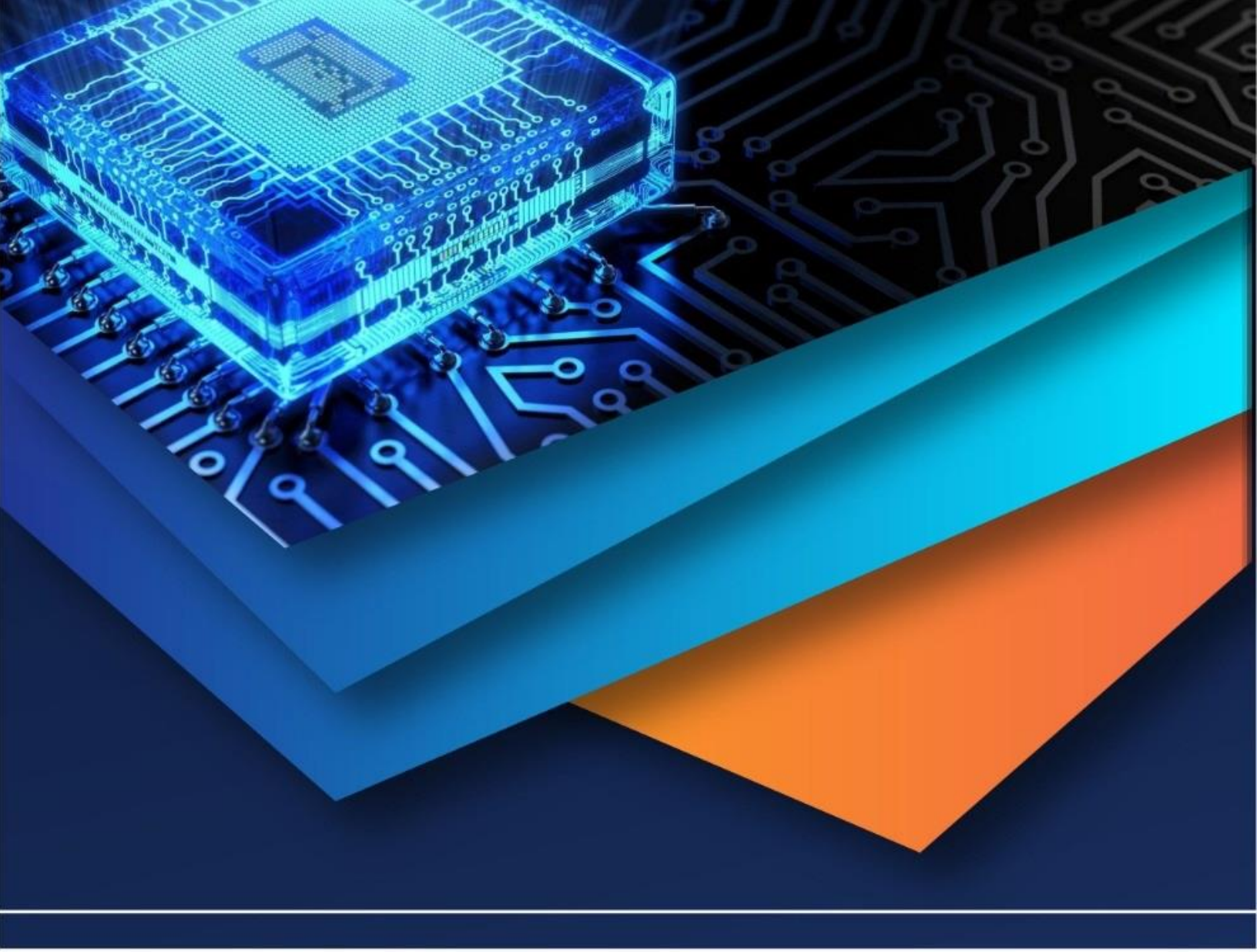
Artificial intelligenceA offers great promise to drive businesses forward, automate manufacturing processes, and deliver valuable insights. AI is increasingly being used across various industries, including logistics, manufacturing, and cybersecurity. Small businesses have also made rapid progress in creating speech recognition software for mobile devices.

To stay ahead in the era of artificial intelligence, it is essential to embrace lifelong learning, develop soft skills, be agile, and specialize in a particular area. By developing these skills and adapting to the changing job market, workers can thrive in the era of AI and take advantage of the opportunities it presents.

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