Artificial Intelligence and the Economy

- The Impact of Artificial Intelligence on the Job Market

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Abstract: Because of the improvement of the performance of modern computer hardware and the continuous development of algorithms, the application of artificial intelligence is more widely used in all walks of life. In this work, the application of artificial intelligence technology in the fields of finance, medical care, industry, information, education and social life, especially in the manufacturing industry, has formed an unstoppable trend. For future careers, the arrival of artificial intelligence is also thought-provoking. In addition to bringing a lot of new jobs, but also let some low-cost, labor-intensive jobs disappear, causing great pressure on the job market, the employment threshold has significantly increased, familiar with artificial intelligence managers and experts pay much higher than manual workers, so that the income pattern of workers gradually prolonged. The arrival of AI technology has also triggered changes in the labor market, with labor market and automation technologies have largely replacing repetitive and more basic skilled workers.

Keywords: AI, Labour force, Intelligent innovation

1.   Introduction

With the improvement of computer performance and the progress of algorithmic thought, Artificial Intelligence (AI) technology has made a great breakthrough in recent years. It is generally believed that AI will form the core driving force of a new round of industrial reform, restructure economic activities such as production, distribution, exchange and consumption, give birth to new products, new services and new industries, trigger major changes in economic structure, and realize the overall jump in the productivity of the whole society [1]. In the process of promoting economic development and adjusting industrial layout, we need to strive to guide the harmonious development of AI and economy, so as to create an ecological environment for the new AI economy. In this work, we study the application of AI, its impact on all walks of life, and how to liberate human beings and increase work efficiency through science and technology. At the same time, it also discusses the impact of AI on employment difficulties. Some low-tech occupations will be eliminated by AI, and there will be new occupations due to AI. In the future, the market needs more innovative talents.

2.   The Preliminary Application of Artificial Intelligence Technology in Various Aspects

AI technology has been widely used in all walks of life, including finance, medical care, industry, information, education and social life. Especially in the manufacturing industry, artificial intelligence has played an important role in the execution of high-risk and high-intensity work, replacing the tasks that traditional labor cannot achieve or bear with machinery. This combination of artificial intelligence and the manufacturing industry has formed an irresistible trend. When AI and biometrics technology are combined to improve information security at the medical level, AI has been widely used, and its image processing and natural language processing and other technical skills have met the requirements of the medical industry. These technologies can provide patients with medical services such as initial health assessment, intermediate pathological judgment, surgical assistance, and later recovery tracking. AI is also gradually being widely used in the financial industry using modern technologies such as big data, cloud computing and blockchain to replace traditional financial activities such as customer collection, identification, risk management, investment advisory and customer service. For the financial industry, which is purely digital transactions, the application of AI is the earliest and most comprehensive. In education, the integration of AI into education ensures that teachers and students are able to use more efficient learning methods through human-computer interaction. All of these benefit from the continuous development and popularization of artificial intelligence technology, which has penetrated into every corner of social life, such as intelligent transportation, intelligent logistics, intelligent supermarkets, intelligent homes, etc. The introduction of artificial intelligence is gradually changing the way and model of human life.

3.   The Impact of the Development of Artificial Intelligence Technology on Employment

In terms of future careers, AI brings both new possibilities and new challenges. With the development of artificial intelligence, a large number of new occupations and new jobs will also appear, creating more job opportunities for the labor market [2]. However, while a large number of traditional industries and positions are replaced by artificial intelligence, those workers who only master simple operational skills are at risk of unemployment and income reduction.

For the working population, the challenging progress of artificial intelligence technology contributes to the unemployment situation -- looking back at the development of human science and technology, we clearly observe that major technological innovation and iteration always lead to revolutionary changes in the industry. Ai technology stands out for its significant automation and intelligence qualities. As intelligent engineering machines systematically replace traditional employee positions, a large number of jobs will disappear. As a result, enterprises' demand for human resources will continue to decrease, eventually causing some workers to face unemployment, putting great pressure on the job market. McKinsey Global Research Institute predicts that by the middle of this century, nearly 49 percent of the world's jobs will be replaced by artificial intelligence, which is mainly low-cost, labor-intensive positions [3]. 2. Due to the development and popularization of artificial intelligence technology, the original physical and mental work, as well as some intellectual work, has been gradually replaced by artificial intelligence, so the employment threshold has risen significantly. The competitiveness and soft power of workers who possess characteristics such as innovation and flexibility will become increasingly important. 3. Creating Wage Inequality - AI technology is causing a shift in employment patterns, which will further affect the income levels between types of workers, stretching the income distribution. In other words, managers, technicians, and specialists who are familiar with AI technologies tend to be overpaid, while workers sin lower-level and service positions tend to be underpaid.

Table 1: The average salary of employed people in urban private units in 2022, National Bureau of Statistics

industry	2022	2023	Growth rate
Agriculture, forestry, animal husbandry and fishery	42605	41442	2.8
manufacturing	67352	63946	5.3
Electricity, heat, gas and water production and supply	61870	59271	4.4
Accommodation and catering	47547	46817	5.8
Information transmission, software and information technology	123894	114618	8.1

As table 1 shows, the average salary of AI technicians is about three times higher than that of low-skilled industries such as agriculture, forestry, animal husbandry, and fishery, and the growth rate is second only to that of the financial industry.

One of the many opportunities generated by the progress of AI technology for the labor market includes opening up new jobs and improving employment prospects. In the era of rapid development of AI technology, enterprises will pay more attention to the research and development department, invest heavily in establishing new research and development institutions, increase research and development positions, and recruit research and development. At the same time, novel technologies will also promote the emergence of new industries and sectors, and with the influx of new industries, employment will continue to increase, creating a large number of new employment opportunities for society.2. Improve labor efficiency and reduce production costs - This is the implementation of artificial intelligence in the industry, which has injected a strong driving force for its transformation and upgrading. In the context of the Internet of Everything, the use of artificial intelligence technology to completely or partially replace the duties of workers can greatly improve the production efficiency of labor. According to the McKinsey Global Institute, AI could contribute 0.8 to 1.4 percent of China's economic growth each year, depending on the rate of application [3]. Increase the professional skills of workers and strengthen the labor force - In the era of artificial intelligence, humans, as creators and users of technology, need to properly understand and apply these technologies, which usually requires the mastery of various "real" skills and "imaginary" strengths.

4. AI Technology Is Related to Changes in the Labor Market

As a symbol of the high level of science and technology at this stage, AI can greatly improve the labor efficiency of social industries and then drive the rapid expansion of the overall economy. From the historical experience of the three industrial revolutions experienced by mankind, we can know that the jobs formed by each industrial revolution are mostly from new industries. From the perspective of the application of artificial intelligence technology, there will be many jobs set around AI in the future, which will produce more new occupations sand new opportunities that are difficult to evaluate [4].

Under the significant impact of the field of artificial intelligence, the structure of the workforce is undergoing a large transformation, with the proportion of blue-collar workers gradually decreasing while the proportion of white-collar workers in the new knowledge economy is expanding. Talent-guided work is already the key to career acquisition, with profound implications for many physical

and intellectual workers. For some traditional industries, the choice to embrace the changes brought about by artificial intelligence can be regarded as a passive strategy. In the era of artificial intelligence, if workers want to adapt to the development and requirements of the new technological revolution, they should not only master the existing technology and knowledge but also constantly update their own knowledge system and skill system and actively cultivate their own innovation ability and innovation consciousness [5]. With the arrival of the era of artificial intelligence, the impact of new science and technology on the job market is wide and deep. However, on the whole, the advantages outweigh the disadvantages. Employees should actively meet the challenges of new technologies and maximize their intellectual potential to improve their employment level. The workforce is living in a rapidly changing technological environment, and it is fortunate that they are always aware of fundamental changes in their working patterns and methods. As the labor market changes and diversifies, the skills required are becoming more comprehensive and rich, which makes it necessary for employees to continuously improve their overall quality. The workplace demand of artificial intelligence technology will quickly reflect to the labor market. Job seekers must face the new job demands, according to their personal knowledge and skills, and make appropriate adjustments to cope with the constant changes in the market.

In general, those who are engaged in day-to-day, demanding jobs are more likely to be replaced by AI in the future, which may lead to their employment opportunities and benefits being cut at the same time. However, for those workers with high-end technical expertise or cognitive technology, the variability of their unique skills makes it difficult for AI and automation technologies to replace them, so their employment demand may increase. AI and automation technologies, which primarily replace repetitive and more basic skills, create higher demand for higher-skilled workers, which may exacerbate income inequality pressures in the near term.

5. Conclusion

In this work, we explore the impact of AI. AI technology has profoundly changed the social structure, economic system, and people's life patterns, and it has brought drastic changes to the work and employment of various fields and different groups of people. This technological advancement has led to the alternation of new and traditional industries and the emergence of new and old jobs. From the perspective of the employment of workers, there are both opportunities and challenges. The government, companies and workers need to actively face this change, clearly see the progress of artificial intelligence, and meet the arrival of intelligent innovation.

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