

An Analysis of Artificial Intelligence Application from the Perspective of Marx's View of Machinery

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Abstract: Marx's view of machinery provides a scientific theoretical foundation for understanding the application of artificial intelligence (AI). AI represents the intellectualization of machinery construction and is, in essence, a further extension of human organs. Under capitalist application, AI is reduced to an instrument of capital exploitation, giving rise to problems such as the displacement of workers, labor intensification, field penetration, and labor alienation. Based on a critique of the capitalist application of AI, the reverse construction of a socialist application scheme for AI is of great significance for enabling people to achieve smooth employment and labor, reduce the burden of work, share development dividends, and move steadily toward free and all-round development in the era of AI.

Keywords: Marx's view of machinery; Artificial intelligence; Capitalist application; Socialist application.

1. The Intellectualization of Machinery by AI and Its Essence

Marx's analysis of machinery in Capital provides a scientific theoretical framework for understanding the application of artificial intelligence (AI). According to Marx, the machine of the industrial revolution consisted of three essentially different parts: the motor mechanism, the transmission mechanism, and the tool mechanism. The core was the tool mechanism, which "after being set in motion appropriate to its purpose, performs with its tools the same operations that the worker formerly performed with similar tools" [1] 430. AI represents a historic leap forward along this logic.

1.1. AI as the Intellectualization of Machinery Construction

On the basis of the three traditional parts of machinery, AI introduces a "computing mechanism," i.e., an intelligent computing system capable of partially substituting for human mental labor. As Marx pointed out, "The principle of machine production consists in decomposing the production process into its constituent phases and solving the problems thus posed by means of mechanics, chemistry, etc., in short, by applying the natural sciences. This principle is everywhere decisive" [1] 531. The technological logic of AI follows the same principle: it captures data through information sensors, applies algorithms for identification, comparison, filtering, and analysis, and finally generates information products or instructions. This process elevates the traditional "soul of machinery" to an "intelligent soul," continuously emanating human "mind" and exhibiting characteristics such as autonomous operation and human-machine collaboration. Fundamentally, this represents a "heart" replacement and intelligent upgrading of traditional machinery.

1.2. The Essence of AI as an Extension of Human Organs

In his analysis of machinery, Marx stressed the need to recognize the "historical element" within it. With the development of technology, "the efficiency of the instrument

has been freed from the personal limitations of human labour-power" [1] 483, and the machine has been able, to a certain extent, to use tools like a human being. The development of AI has achieved an even higher level of extension: from simple tools extending the human hand, to advanced machines extending human limbs and senses, and finally to AI extending human brain functions, enabling machines to be "conscious," "to think," and "to make decisions." As Marx pointed out in the Grundrisse (1857–1858), nature did not build locomotives, railways, etc.; "they are products of human industry, natural material transformed into organs of the human will that dominate nature or of human activity in nature. They are organs of the human brain created by the human hand; they are the power of knowledge objectified" [2] 198. AI is precisely the contemporary embodiment of this logic.

2. A Theoretical Critique of the Capitalist Application of Artificial Intelligence

Marx revealed that machinery itself is an objective productive force, but its capitalist application turns it into an instrument of exploitation. As a cutting-edge intelligent machine, AI, under the logic of capital, has likewise become a tool for extracting surplus value and has brought about in reality such problems as the displacement of workers, labor intensification, field penetration, and labor alienation.

2.1. Displacement Effect: The Replacement of a Large Number of Jobs by AI

At present, AI has already reached or even surpassed the skill level of skilled workers in many specialized fields. Since the fundamental purpose of capital is the pursuit of profit, the capitalist application of AI will, within the limits of its technical capabilities, massively replace workers, thereby rapidly increasing constant capital and reducing variable capital. The replacement of human labor by AI under capitalist application mainly follows two paths. First, the large-scale replacement of procedural and repetitive jobs, such as parcel sorting, cargo handling, data entry, and news draft writing. Second, the partial replacement of creative and

emotional labor, for example, manuscript polishing and psychological counseling. These replacements transform variable capital into constant capital, save labor costs, and at the same time circumvent the legal and moral constraints associated with employing workers, enabling 24/7 uninterrupted production by AI. As Marx pointed out, “the relative decrease of the number of employed workers and its absolute increase go hand in hand” [1]517. Although the capitalist application of AI creates new jobs while displacing old ones, these new jobs are mainly oriented toward high-end, intelligent labor fields, inevitably leading to a polarizing situation where a large number of ordinary workers are “marginalized” while a few high-end talents become “centralized.”

2.2. Labor Intensification: The Covert Increase of the Extent and Intensity of Labor

The capitalist application of AI seems to reduce labor, but in fact it covertly intensifies labor in two dimensions. In the sphere of wage labor, AI shortens the worker’s necessary labor time and lengthens surplus labor time, while at the same time, through automated monitoring systems, it strengthens control over workers, reduces non-productive time, and increases labor intensity. In the sphere of non-wage labor, capital uses terminals such as smart bracelets, mobile phones, and tablets to incorporate users into the network of digital labor. While people use smart software for free, they unconsciously produce data, which capital then appropriates through algorithms, thereby achieving an invisible exploitation of laborers. Capital, in collusion with AI, has transformed people’s ways of producing and living. Many people engage in digital labor during all their spare time, often exceeding natural and physiological limits in terms of working time and the use of bodily organs, leading to physical health problems. Capital has thus accomplished the transition from the “involuntary labor” of the industrial age, where workers were forced to use machines, to the “voluntary and self-directed labor” of the smart age, where workers are induced to actively use smart devices.

2.3. Field Penetration: The Encroachment of the Workplace into the Lifeworld

The traditional workplace and the lifeworld were clearly demarcated. By means of smart mobile terminals, AI enables the labor field to thoroughly penetrate from the factory floor into private life. The data unconsciously produced in all activities—shopping, traveling, browsing, commenting, commuting, exercising—are collected and processed by AI software into information products, which are then sold by capital for profit. Capital seeks to grasp “every pore” of people’s work and life in order to extract surplus value. In short, whether it is AI software or smart machinery, the mere act of using it means producing raw data, thereby breaking down the spatial and temporal boundaries of traditional labor. Capital thus achieves the round-the-clock, whole-process, full-time absorption and exploitation of labor, and society as a whole presents a vast spectacle of intelligent digital labor.

2.4. Deep Alienation: The Opposition of the Worker to the Means of Labor and the Product of Labor

Analyzing on the basis of Marx’s theory of alienated labor, the new alienation of human beings under the capitalist

application of AI consists mainly in the higher-level alienation of the worker from the means of labor and the product of labor, which in turn leads to the alienation of human beings from one another. On the one hand, capital, by providing smart tools for free, appropriates the user’s digital labor without compensation, while the user not only lacks ownership of the tools but gradually becomes subjugated by them. That is, users are induced by algorithmic recommendations to make irrational purchases and to become addicted to viewing pushed content, thereby easily developing an AI dependency. On the other hand, the data commodities produced by users are appropriated without compensation by capital, and after being processed, the information products that are formed and accurately pushed back enslave the users, trapping them in “information cocoons.” The law, revealed by Marx, that the product of labor becomes an alien force dominating the worker operates in the age of AI in a more concealed form.

3. Constructing a Path for the Socialist Application of Artificial Intelligence

Based on the critique of the capitalist application of AI and taking advantage of the superiority of the socialist system, a scheme for the socialist application of AI should be constructed along the following four dimensions.

3.1. Education and Training: Empowering Workers to Transfer Smoothly to New Jobs

As the application of AI in production inevitably leads to the gradual replacement of a large number of traditional production workers by machines, it is necessary to adopt proactive employment measures and labor protection policies. The government should build an integrated intelligent education system, cultivating students’ AI literacy from the basic education level, while also strengthening education in the humanities. For workers whose employment is affected by AI, the government and enterprises should cooperate to establish a vocational and technical training system. Such training courses should mainly focus on mid- and low-level technologies complementary to AI production, suitable for the learning capacity of ordinary workers. They should provide re-employment skills training for unemployed persons and for employed workers who wish to transfer to AI-related jobs, and issue officially recognized qualification certificates to help them successfully change jobs or find employment.

3.2. Legislation and Supervision: Using Legal Regulation to Lighten the Burden on Workers

Since China is currently in the primary stage of socialism and implements an economic system with public ownership as the mainstay and diverse forms of ownership developing together, there will inevitably be a certain degree of control by capital logic in the application of AI. In order to better protect the legitimate rights and interests of workers, it is necessary to accelerate legislation concerning the negative impacts of AI application on workers. On the one hand, the maximum working hours should be scientifically set according to the socially average labor time under AI conditions, ensuring workers’ time for study and rest. On the other hand, AI software should be guided to issue gentle

reminders about the length of time individual users spend on them, and for users who exceed a certain time limit, forced disconnection should be implemented, thereby protecting users' physical and mental health, preventing digital labor overload, and lightening the burden on workers.

3.3. Distribution and Justice: Sharing the Dividends of AI Development Among the Whole People

The vast social wealth created by AI should be shared by the whole people. The government should make overall plans and use redistribution policies to fairly distribute the dividends of AI among all the people, enabling them to enjoy the conveniences of AI in smart education, healthcare, transportation, communications, and other fields. The government could also explore the formulation of a scientific universal basic income policy, which "not only can solve the problem of income inequality, but can also create a more equal and free good society, giving people a more dignified right to choose their way of life. It is the welfare policy of first choice for sharing the fruits of AI technology" [3]111-125. Furthermore, the government should pay attention to protecting the rights and interests of digital laborers, formulate relevant policies and regulations, adhere to the principle of distribution according to work, and ensure that data producers receive fair returns.

3.4. Progress and Return: Realizing the Free and All-Round Development of Human Beings

The development of AI has prepared the productive conditions for human emancipation. As AI replaces routine labor, workers will be liberated from heavy toil and engage in more creative activities; at the same time, they can freely choose the work they enjoy, thereby achieving free and all-round development. Under the socialist system, the huge social wealth created by the application of AI in production can provide a solid material foundation for people's survival and development, thus enabling labor to return from a means of making a living to a free and spontaneous life activity. The

vision of free and all-round development that Marx envisioned—"to hunt in the morning, fish in the afternoon, rear cattle in the evening, criticize after dinner"—has, in the age of AI, acquired unprecedented material and technical conditions. Therefore, we must vigorously develop AI while taking advantage of our country's institutional superiority, making AI serve the people's needs for a better life.

4. Conclusion

Historically, artificial intelligence is the intellectualized form of the development of machinery, and its essence is a further extension of the human organs. In reality, AI materializes in the form of intelligent machines and has two modes of application. Marx's view of machinery provides a powerful theoretical weapon for criticizing the capitalist application of AI. Under the influence of the capitalist application of AI, workers' labor undergoes a transformation and is covertly exploited by capital in a more subtle way; the time, intensity, and scope of workers' labor have undoubtedly increased, and workers have been fitted with an invisible chain of AI. In contrast, the socialist application of AI can effectively alleviate such problems. By reflecting on the deficiencies of the capitalist application of AI and, in reverse, constructing a scheme for the socialist application of AI, we can continuously return AI to its original mission of benefiting the people. This will not only allow the social-historical value contained in AI to burst forth and be manifested, but will also be a real boon to helping people steadily achieve free and all-round development.

References

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