

Return, Defuse, and Make a Breakthrough: The Significance of the Integration of Bioengineering and Artificial Intelligence [†]

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Abstract: This article proposes the substitution of artificial intelligence due to technological development: it not only includes the iteration and advancement of human-use tools of intelligent systems in the material world, and the systematic substitution of human labor, but also the push of intelligent systems on human creation in the information world. The integration of artificial intelligence and bioengineering not only enables technology to advance production and promote social development but also optimizes the structure of life forms, achieves creative breakthroughs in thinking, reshapes and recreates new ways of life evolution, and at the same time realizes culture evolution.

Keywords: bioengineering; artificial intelligence; integration



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1. Introduction

With the development of artificial intelligence, people have begun to worry about the negative impact of the future development of artificial intelligence on human society [1], especially the trend of artificial intelligence's systematic substitution of human labor. Meanwhile, reliance on artificial intelligence decisions may cause a lack of human independent thinking, reduction of self-directed and regenerative information activities participated in by human subjects, and "shrinkage" of the cultural world created by human beings. Finally, artificial intelligence may lead the way in both the material and information world.

However, the integration of bioengineering and artificial intelligence technology may directly affect the improvement of human labor ability, help to solve the inequality caused by the different labor abilities traced back to congenital problems, and open up the field of human development.

Technological integration reduces humans' over-reliance on robots. This improvement will inevitably reduce human over-reliance on intelligent robots, enhance the human's ability to control robots, and promote the common development of humans and robots.

Technological integration improves the efficiency of bioengineering progress, expands the application fields of bionic engineering, and innovates practical scenes for inorganic life engineering.

2. Concerns about Artificial Intelligence

The development of information technology provides possibilities such as the substitution of body organs, substitution of human labor, systematic substitution of human labor, and even the systematic substitution of human beings. In the process of artificial intelligence development, the trend of systematic substitution of human labor makes people begin to worry about the negative impact of the future development of artificial intelligence on human society.

A common concern is that artificial intelligence based on bionic technology (in practice as a non-biological substitution of biological) may replace humans in the physical world.

Meanwhile, reliance on artificial intelligence decisions may cause a lack of human independent thinking, reduction of self-directed and regenerative information activities participated in by human subjects, and “shrinkage” of the cultural world created by human beings. Human beings may lose the sense of superiority, accomplishment, and self-satisfaction.

Artificial intelligence would not only produce material things but would also produce information, limit human creativity, and destroy human culture until it leads the way in both the material and information world.

3. Integration back to the Standard of Human Development

The integration of bioengineering and artificial intelligence technology makes artificial intelligence technology no longer only an improvement in production efficiency in the form of production tools but may directly affect the improvement of human labor ability. Intervention of artificial intelligence systems may improve the efficiency of bioengineering techniques, enhance human awareness of biological structures, and provide conditions for optimizing life structures.

The technical integration of bioengineering and artificial intelligence can help to solve the inequality caused by the different labor abilities traced back to congenital problems. At the same time, technology integration can improve the efficiency of learning, help to promote educational equity, and then solve the problem of fairness and justice for the long-term development of society.

Technical integration has opened up the field of human development. Bioengineering and artificial intelligence technology integration can greatly improve human existing capabilities. This is not an alternative to organs but a human enhancement that may transcend existing organs. Therefore, it is bound to expand new developments in humans, including the material world and information world, and promote people’s full free development in a broader practical field.

The integration not only improves the evolution of the tools in life but also enters the evolution of vital thinking and promotes biological evolution, as well as remodeling and recreating the new life evolution of life itself and promoting cultural evolution [2].

4. Integration to Defuse the Risks of Robot Applications

Technological integration reduces humans’ over-reliance on robots. This improvement will inevitably reduce human over-reliance on intelligent robots, although the process of reducing this dependence does not necessarily manifest as a decrease in the frequency of use of intelligent robots but a two-way development process between humans and intelligent robots. It will also gradually reduce the excessive dependence on intelligent robots (or intelligent systems).

Technological integration enhances the human’s ability to control robots. The improvement of human capabilities must include the enhancement of human control over intelligent robots. This control is not rule and dominance in the traditional sense but an overall control over the harmonious development of humans and robots. This is also the control ability of human beings to grasp our own development and destiny. Technical integration effectively enhances the capabilities of pre-judgment and response of the risks when human beings use intelligent robots.

Technological integration promotes the common development of humans and robots. In this harmonious symbiosis, intelligent robots that are human-oriented can also be well developed. This development is not only a necessity for intelligent robots as an intelligent body but also the inevitable development of human beings. The integration of technology has enabled humanity and robots to be difficult to divide, and harmonious development is the best choice for both.

5. Integration to Break through in Intelligent Design Bottlenecks

Technological integration improves the efficiency of bioengineering progress. Artificial intelligence technology is embedded in conventional applications of bioengineering to enhance the ability of humans to intervene in bioengineering. Artificial intelligence technology can shorten the natural cycle of bioengineering results in the form of digital simulation, thereby improving the efficiency of bioengineering progress.

Technological integration expands the application fields of bionic engineering. Technology integration provides new technical solutions for the application of traditional bionic engineering and has a deeper and more efficient understanding of the functions of biological systems and biological organs, providing support for the expansion of new application fields of bionic engineering.

Technological integration has innovated practical scenes for inorganic life engineering. Under the bridge of the integration of bioengineering and artificial intelligence technology, the positive interaction between inorganic life forms created by inorganic life engineering and traditional life forms in the material world will become an inevitable possibility. This interaction enriches the practical scenes of inorganic life engineering, and it is also a supplement to the integration of bioengineering and artificial intelligence.

6. Conclusions

Technological stagnation is not a good way to escape the technological dilemma. The problem of technological application should be solved through technological progress. This is a question about the direction of technology. One should not be afraid of sharpness, just hold the handle of the knife. The integration of bioengineering and artificial intelligence should receive due attention, not only for technological progress but also for human development.

Author Contributions: D.C. put forward the view that “artificial intelligence based on bionic technology (in practice as a non-biological substitution of biological) may replace humans in the physical world”. The view that “the substitution of artificial intelligence is not only reflected in the physical world but also in the information world” was put forward by Y.T. This paper was generated during a discussion between two authors. D.C. wrote a summary of the article, Y.T. wrote in English. All authors have read and agreed to the published version of the manuscript.

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