

# Artificial Intelligence in Biological Cell Engineering: Future Directions and Transformative Potential

Jashanbir Singh<sup>1</sup>, Gurjit Singh Bhathal<sup>2</sup>

<sup>1</sup>Department of Biotechnology, Adikavi Nannaya University, Rajahmundry 533 296, Andhra Pradesh, India

<sup>2</sup>Department of Microbiology, Rajiv Gandhi Institute of Management and Science, Kakinada 533 005, Andhra Pradesh, India

**Abstract:** *In the present paper an attempt has been made to Artificial, intelligence is growing quickly. The cybernetics was defined as a description of control and communication in living organisms and machines, by Norbert Wiener in 1948. Unfortunately, the part of living organisms is often underestimated. Recently, the initiative. A New Biology for the 21st Century of the US National Research Council of the National Academies, announced a goal of re - integration of the many sub - discipline of biology, and the integration into biology of physicists, chemists, computer scientists, engineers, and mathematicians to permit deeper understanding of biological systems. The similar aspect is expected to be a part of the next European framework Horizon 2020. Contemporary situation has to deal with two complementary issues: 1) The system theory and the artificial intelligence already produced plenty of theories, methods, and algorithms for processing and analysis of the digital (sampled and quantized) signals, including images, to perform generous amount of possible results for given tasks. Various methods were gradually conditioned properly in specific or general way.2) On the other hand, biology (biochemistry, biophysics, systems biology) is able to generate troubling problems, which are mathematically analogous to the problems already solved in the other scientific fields. Thus, the interdisciplinary collaboration has a possibility to increase an impact of the joint solution.*

**Keywords:** Artificial intelligence, Introduction, biological cell engineering, interdisciplinary science

## 1. Introduction

Artificial Intelligence is one of the most sought-after frontier areas of modern science. John McCarthy (1927 - 2011) was an American computer scientist who first coined the term Artificial intelligence in the year 1955. Research continues at various level for simulations of human brain systematic thinking in electronic devices and its translation. A concept of biology: "Intelligence" let be transform to electronic signals and waves and translated to work by machines called machine learning. It is an interdisciplinary science of electronics, physics, chemistry, mathematics, engineering, computer science and finally the biological sciences. There is every possibilities in coming days, the machine learning and artificial intelligence will replace existing machines and begin an new era of machine with memory, judgment and execution. Two pioneers of artificial intelligence — John Hopfield and Geoffrey Hinton won the Nobel Prize in physics for helping create the building blocks of machine learning that is revolutionizing the way we work and live but also creates new threats for humanity. An artificial neural network in electronics has been developed, interconnected computer nodes simulating the neural network in brain. Few remarkable quotes are mentioned here on AI: 1. Hinton, who is known as the godfather of artificial intelligence, Hopfield is an American working at Princeton. Hopfield, whose 1982 work laid the groundwork for Hinton's, quoted by a member of Nobel Committee? 2. Hinton said, "AI will end up having a "huge influence" on civilization, bringing improvements in productivity and health care. "It would be comparable with the Industrial Revolution," "We have no experience of what it's like to have things smarter than us. And it's going to be wonderful in many respects," "But we also have to worry about a number of possible bad consequences, particularly

the threat of these things getting out of control." 3. One of the Nobel Committee members quoted: AI has "enormous benefits, its rapid development has also raised concerns about our future. Collectively, humans carry the responsibility for using this new technology in a safe and ethical way for the greatest benefit of humankind." When intelligence is a word meaning related to the biological memory on the neural system, its application in machine could really be a challenging for the scientists. what so ever or its level of implications begin with from a minor phyla to higher organism. This concept of memory and analyzing capacity of neuronal system has been translated and incorporated in machine. It will be applied in robotics, health cares system, diseases diagnosis, finance, automated administrative task, defense, to improve public safety, detect crime, and provide citizen services, banking services and many others that will have deep societal implications. Successful use of AI planning and perception approaches may be seen in NASA's space - based autonomous vehicles, which use technology to steer and move on their own without human intervention The animal cell could be the most complex organized system of matter, that unable to synthesize in artificial condition. While, AI will bring the answer of many complex questions of biomedical diagnostic, treatment and surgical procedures, the functions of biological cells, its life span, and changed dunctions in different stages of organism's life need to be elucidated. It is yet to be find out how, organism's brainwork, the neural network communicates for final delivery of mind. Does artificial Intelligence replace the human brain? Or it is not the objective of AI studies? A network of systematic reasoning ants its output the technology of AI and its applications. A work shall need to understand by reasoning step - by - step and translated into electronic signaling wave and its final output in terms of work performance. Time will

come, when AI will be part of daily life, begin with housekeeping to the critical health care services.

Few questions arise: Does a biological cell including a neuron can be synthesized in the laboratory. Does the AI chips or any other new devices of AI can be implanted in biological system for working out metabolic activities, neural functions? Does AI will be a replacement of inborn error of metabolic and neural disorder of Children. War ravaged world is one of the major threats and challenges to be faced by the humanity in coming years. Whatever and wherever, it holds out, how far the implications will be of small nuclear arms. We are keeping our fingers crossed for the better days for humanity.

Conclusions

## 2. Conclusion

Biological data are troubling in interpretation. However, they are mathematically analogous to the problems already solved in the different fields. The processing and analysis of digital images, processing of signals for classification offers pre - implemented method for task designed solutions. Currently, the expansion of the collaboration between data producers and application developers is on the rise. Artificial intelligence technology, particularly Machine Learning and Deep Learning, offers substantial improvements over human capabilities in terms of accuracy, speed, and cost - efficiency in data analysis. These methods not only assist researchers but also pave the way for the transformation of decision - making processes in the biomedical field. AI technology has been significantly impacting every stage of biological cell engineering studies, from laboratory research to clinical application for the benefit of all humankind.

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### Conflict of interest

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