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Mini Review

Artificial Intelligence - Way Forward in Livestock Industry

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Abstract

Artificial Intelligence (A.I.) is a multidisciplinary field whose objective is to automate the activities which presently require human intelligence. Recent success in AI includes computerized medical diagnosticians and systems that automatically customize hardware to specific user requirements. In this article, an attempt has been made to trace the different applications of artificial intelligence in the field of livestock. As the upcoming world seems less complex with modern techniques, in which AI can be one of them. The various concepts such as gaming, expert system, language processing have enumerated. The advantage and disadvantages of AI in the field of livestock have also been discussed.

Keywords: *AI; Remote System; Marketing Efficiency*

Introduction

The earlier industrial revolution attempted to create those machines that could replace human's physical power. The industrialization has transferred the society and brought immediate crises in later development. Various machines can outperform human beings over the centuries. Man's working capability and thinking process can now replace with the AI techniques. Artificial intelligence is a method to make such devices that work like the human brain. AI relates to the working of the human brain that, how it works, receives impulses, interpretation of impulses, and then to conclude from the previous information stored in the brain. It can prepare a response by building a new idea after getting the message and then respond to it in the best way. The current examples of such devices or machines include computers or robots etc. AI approaches include machines that think smart like the human brain and solve problems as early as possible [1].

Livestock is a broad sector that constitutes animals and birds that are grown to fulfill the nutritional requirements of the human being. In past the world population was small, and people were confined to specific regions. They keep a small number of animals at home that were enough to fulfill their household requirements. Today, the world population is growing very fast and there is an urgent need to convert that conventional method of livestock that was practiced in the past into new modern methods. Livestock is the largest sector of agriculture that contributes about 57% of total GDPA from the agriculture sector. Now there are many large dairies, beef, layer and chicken farms established. Because they are living beings, they also require feed daily. To control and maintain this largest sector we need a system where the chances of mistakes are negligible [2].

With the advent of the computer, every field of life is revolutionized. Now we can perform better and excellent work with the help of the latest software. These systems are also very successful in the field if livestock where we can transfer man-controlled sheds and farms into AI-controlled sheds and farms e.g. environmental control sheds [3].

Objective of the Study

- The aim of the use of artificial intelligence in the livestock sector is to hone the productivity of the livestock sector. Intelligence is a broad subject that includes reasoning to observations, learning about the observations received, then solving the given set of problems whether verbal or non-verbal, perception and linguistic intelligence [4].

- There are long term objectives or goals in the path of the intelligence sector. The objectives of artificial intelligence include learning, knowledge, reasoning, planning, representation, processing of natural languages, and capability to move and interpret objects [5].

Applications of AI

- Processing of natural languages: Interact with modern devices that understand well the languages spoken by humans.

- Gaming: AI has an essential role in the thinking of possible positions based on deep information in strategic games like PUBG, commando, etc.

- Skilled or expert systems: Software give comprehension and advice to their users.

- Vision system: These systems can understand and elaborate the inputs given in the form of vision like cameras.

- Speech system: Certain systems are based on AI speech recognition that can hear and express as sentences and understand their meanings while a person talks to it like Google assistant.

- Page recognition: There is certain page recognition software that read the text on the paper and recognizes the shapes of the letters and converts them into editable text.

- Intelligent robots: Robots are the current latest systems which work like human and can perform the instructions given to them by humans or operators [6].

"AI is likely to be either the best or worst thing to happen to humanity".

Stephen Hawking

Application of AI in the control of livestock and environment pollution

It is interesting to know that AI has been widely used in many aspects of human lives. A good case is presented by Chan., *et al* (2003). The authors stated that AI could be applied to the reduction of environmental pollution, conservation, and recycling since natural resources are significant social and environmental concerns. As we know in the cattle and poultry farm, a large number of excreta and byproducts daily are produced. We can utilize them to produce productive substances instead of throwing away that pollute the environment. The dung of animals is used to produce natural gas. Because natural gas plants are very dangerous for the farm as they can explode, so we can minimize the risk by using such sensors that can help us to know the safe amount of all gases that are produced in the plant or the sheds and to keep them at the standard level [7].

Application of AI in record keeping

An averaged sized farm keeps about 1000 animals. If we keep the record of animals on the register, it will take a long time and the chances of losing records are also possible. So instead of tagging, we can place a tiny chip inside the body of animals that can be scanned when animals pass through the scanner located or build at a place. By scanning, we can immediately recognize the data saved in those chips on our computer. Instead of opening our registers, we can keep and know all the information about the animals like age, breed, sex, pedigree, and sick report quickly [8].

Application of AI in diagnosis

A few years ago, we recognize the pregnancy of inseminated cattle through rectal palpation. There are three possibilities about the pregnancy status of cow i.e. not in calf, in the calf, and not confirmed. By the invention of the Ultrasound machine, we can recognize status very precisely. By using an ultrasound machine, we can also diagnose many other diseases of animals [9].

Use of robots at the farm

Robots are modern automation technologies that are mostly used for the production and non-production works to facilitate the human lives. These robots are used at the abattoir, feed mills, and inside the environmentally controlled sheds. Many manufacturers have changed their old man-powered plants into automatic plants that work more rapidly and precisely. Their examples include the production of feed and packaging, processing of meat, etc [10].

Advantages

AI advantages include:

- Easy diagnosis.
- More powerful and more useful.
- New and improved interface.
- Solving new problems.
- Better handling of information.
- Relieves information overload.
- Conversion of information into knowledge [11].

Disadvantage

AI disadvantages include:

- Increased cost.
- Difficulty with software development (Slow and expensive).

- Few experienced programmers.
- Few practical products have reached the market yet [12].

Conclusion

It is conceivable from the above discussion that if we transfer our dairy, beef, and poultry farms into new and modern farms, we will be able to get more profits than with the conventional farms. With the conversion of manpower into machines, it will enhance the production of the farm, keeps record safe, and saves our time. Moreover, the daily cost also decreases. Livestock is the basis of any country from where our food and leather industry flourish. In the future world seems faster, we need remote techniques as much as we can to make life easier. So that we can get more profit from the limited resources by keeping an eye on them through AI. Such techniques are going to be part of our lives nearly. So, to cope up with such a situation we need to get ready with new ideas in the industry.

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