

A Study on Artificial Intelligence and Its Applications

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Abstract: In the current scenario AI plays in vital role in various fields such as medicine, robotics, etc. This paper discuss about the artificial intelligence, its functions, advantages, disadvantages and its applications. In future, the intelligent machines will be replaced to improve the capability of a human in many areas. The intelligence of AI is revealed by machines or software. It also the subfield of computer science, now a day's becoming popular in power station.

Keywords: Artificial Intelligence, Medicine, Robotics, Human Intelligence.

I. INTRODUCTION

A) What is intelligence?

Intelligence has the capacity to adapt one's behaviors to appropriate new conditions. It is additional defined as the capability to observe information, and recall the data to be more functional towards adaptive behaviors within an environment. Intelligence is most generally considered in humans, which also observes the non-human animals and in plants. Artificial intelligence is an intelligence in machines. (i.e., software)[3]. The degree of intelligence is the ability to change.

B) Human Intelligence:

Human intelligence is the ability of humans, categorized by perception, consciousness, self-awareness, and volition. It allows humans to recollect imageries of things and practice in upcoming behaviors. It is a reasoning process which allows humans to get knowledge and think [3].



Figure 1. Example of Intelligence

• In Animals

The major focus is on intelligence researchers, were scientists endeavored to examine animal intelligence. It comprises several events of problem solving, as well as numerical and verbal reasoning abilities [3].

• In Plants

The plants has been categorized as intelligent based aptitude to intellect and model the external and internal environments to adjust their morphology, physiology and phenotype which helps to guarantee the self-preservation and reproduction [3].

II. ARTIFICIAL INTELLIGENCE

AI is a part of computer science with the construction of intelligent machines, which consumes new ideas that sorts the computers to perform equal like humans [1]. In modern terms AI can be defined as intelligent agents, that acts as environment and chances the actions into success[2]. Some of the actions which computers deal with artificial intelligence are designed includes:

- Learning
- Reasoning
- Perception
- Problem solving
- Language-Understanding

a) Learning:

Learning is differentiated into various forms. The basic form of learning is trial-and-error. It enables the learner to achieve better excellently in situations that is not previously encountered.

b) Reasoning

Reasoning comprises drawing inferences which are applicable to the task or situation in hand. One of the hardest problems in challenging AI is that of giving computers the capability to differentiate the relevant from the irrelevant [4].

c) Perception

In perception the situation is scanned by various sense-organs, real or artificial, and processes the internal to the perceiver and analyses the scene into objects and their features and relationships.

d) Problem Solving

Problem solving is one of the common problem in AI, such as finding data X. Various types of problems can be addressed in AI [4]. The problem solving can be divided into two types. They are: Special Purpose and General Purpose. A special-purpose method is also known tailor-made which solves only a particular problem, were the general purpose method solves the problem in a step by step process.

e)Language Understanding

A language is a symbol of consuming by convention, were the languages can be in different form, which distinguishes it from native human speaker.

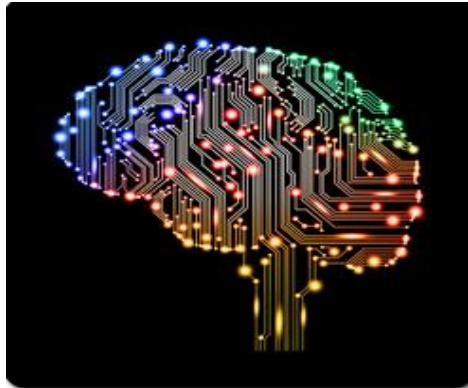


Figure 2. Artificial Intelligence

III. FUNCTIONS OF ARTIFICIAL INTELLIGENCE

The AI has various functions like agent function, heuristic function and evaluation function.

a) Agent Function

AI acts as an analysis on computational agency. An agent is approximately the actions in an environment, which includes dogs, humans, robots, worms etc.... A computational agent is an agent where it results in actions which can be explained in terms of computation. Agent functions are placed in time were they receive sensory data in time and do actions in time. The function inputs are set to do work at a particular time [5].

b)Heuristic Function

A Heuristic function helps in resolving problems, even though there is no assurance that it will never lead to incorrect direction. In order to practice them in a specific domain there are coupler with approximate domain heuristics. The domain can be classified into two ways-specific, heuristic information that can be combined into rule-based search procedure. The heuristic function, in rule themselves appraises individual problematic states and regulates how desired they are: A heuristic function is a function which maps the problem state explanation to measures the action desirability, usually represented as number weights. The designed heuristic functions provides good estimate to consider the path desired is good or not [6].

c) Evaluation Function

Evaluation function is used for game-playing programs to approximate the value of a position. It is designed to prioritize speed over accuracy were the function looks only at the current position and does not explore possible moves which is static. It is also called as heuristic evaluation function or static evaluation function [7]. Example: Chess, were all the positions cannot be examined at a time, since it has 40 to 50 moves. Only the current move can be examined.

IV. ADVANTAGES AND DISADVANTAGES

A) Advantages

- With artificial intelligence, the probabilities of error are almost nil, which has better accuracy to be achieved.
- Organizations custom the avatars that are numerical assistants who interrelate with the users, thus saving the essential of human resources.
- Robotic pets can help patients with despair and also save them active [9].
- Their job is almost infinite as the machines will be able to do everything, essentially as they doesn't have any boundaries.
- Can be able to complete work faster than a human
- They need not stop at any time as the machines no need to sleep, because they don't get ill, there is no need for breaks [8].

b) Disadvantages

- If the control of machines drives in the incorrect manner it may lead to destruction. Machines won't think before acting. They might be programmed to do the wrong things, or for mass destruction.
- If robots start to switch humans in all field, it will finally lead to unemployment. People will be left with nothing to do. So much empty time may affect its destructive use [9].
- Can be changed foremost to mass scale destruction.
- The malfunction can do the opposite of what they are programmed to do
- It has the efficiency to corrupt younger generation.
- The AI mainly lacks in human touch, since it does not have the capacity to think, it can only function according to program [8].

V. APPLICATIONS

a) Games

In games AI is used to create intelligent actions mainly in non-player characters (NPCs), frequently simulating human-like intelligence. Computer games similarly use multi-agents for building teamwork, competition, and NPC modelling key basics to success. Machine-learning methods might allow the NPCs with the ability to improve their performance by knowledge from errors and successes, to automatically adjust to the strengths and weaknesses of a player, or to study from their opponents by replicating their tactics.
Eg: VideoGames.

b) Manufacturing

AI technologies remain in outcome of their technique into manufacturing. This development is similarly seen in Foxcann, the No.1 EMS in electronic industry, were 10,000 robots were developed in factories to balance the increasing labour cost in china. Fox can n is also silently employed with Google to speed up its robotics program, hopeful to convert itself into a high-tech manufacture focus on high margin and capital-intensive products. Japan is one of the leading country in robots. Changing the

human with robot is a trend in manufacturing that we can't stop or avoid. Since this technology adopts the low cost, high-accuracy and efficiency of robot, which going to benefit the human society in a broad level.
Eg: Robotics.

c) Finance

AI is used in finance to secure and prevent fraud detection. Banks customs the artificial intelligence systems to establish operations and capitalize in stocks, and achieve properties. Applications surrounded in end-user devices with financial institution servers that are accomplished of examining enormous volumes of information, providing modified into financial advice, calculations. It helps to progress financial plans and methods to track their progress. It comprises several customized investment, opportunities, loans, rates and fees [11].

d)Transport

Transportation is one of the challenging domain, because it has special characteristic complexity. It is molded up by geographically and functionally circulated heterogeneous elements, both artificial and human, with dissimilar decision-making abilities having mutual or individual goals, constructing its dynamics slightly uncertain [13].The balanced usage of transportation infrastructures on which they interact with the location must be achieved on a maintainable basis.AI ensures the productivity by making enhanced use of existing transportation infrastructure, including them with smarter, greener, safer, and more efficient technologies. The modern transportation systems are a natural ground to conceive, develop, test and apply AI techniques.

e) Military

AI is one of the applications which has grown worldwide, and took place also in military. The current use of AI not only limited battlefields, yet it is not a small part. AI makes more beneficiaries for military, especially by reducing life loss during war. One Example is to automate the long distance vehicles in different land shapes. The next is to build the solid robot that can identify enemies, which is capable of making decisions, follow orders and complete the mission successfully.

VI. CONCLUSION

Artificial Intelligence and the technology are unique lateral of the life which continuously make attention and wonder us with the innovative ideas, topics, innovations, products etc...AI plans can overtake the human experts. Nowadays the great challenge of AI is to the catch methods of demonstrating the consistent data and understanding that people can be enable to carry out daily actions such as holding a wide-ranging conversation, or finding their way along a busy street. Conventional digital computers may be accomplished of running such programs, or we may essential need to develop new machines that can support the difficulty of human thought. This is not the conclusion of AI, there is further to

originate after it, who recognizes what the AI can do for us in the future, perhaps it will be an entire culture of robots.

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