

# Artificial Intelligence Overview

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**ABSTRACT:** Artificial intelligence is a branch of computer science, where human create a machine that is non-organic entity in nature and inculcate all the capabilities of natural organic entities. Here Researchers are going to create systems which mimic the human behaviour, take the instructions as human beings and understand process and speech. So here in the paper we are going to describe the various applications or fields where it can be applied and its benefits and risks of artificial intelligence.

**General Terms:** Artificial Intelligence

## 1. INTRODUCTION

Artificial intelligence is a field of study which is to model and simulate human like intelligences and behavior seen in nature. Artificial intelligence helps us learn plan and gain knowledge. It is used in many fields like Robotics, public transports and speech recognition. The aspects of Artificial intelligence have already being used in malware which help the software hide and still more flexibility.

The artificial intelligence is a boon for cyber security as they can identify the threats to the system. Many algorithms and methods used to identify the threats has been specified [1].

The methods of Artificial intelligence in computer forensics which reduce the time and assists the experts during examination [2]

In Artificial intelligence the focus is to create the machines that can work & behaves as human beings, that will be considered as a talent, as the systems/machines works like human, In Artificial Intelligences, the machines exhibits the conjunctive functions that humans associate with their human minds like, learning & problem solving (also called as machine learning).

The God of artificial Intelligence research includes many like reasoning, Knowledge, learning, communication, Perception and the ability to move and manipulate objects. Artificial Intelligence field was founded manly to check human intelligence and can be rightly described that a machine can simulate the same. The challenge here is to create another intelligent being which is equal to the human, where it is not only be the replica of thoughts but also the thinking ability should also be present.

## 2. ADVANTAGE AND DISADVANTAGES

Recently these is an ongoing discussions that whether the artificial intelligence is a boon or bane to the human existence in the future. The very idea behind the Artificial intelligence is to make the human lives easier.

### Advantages

It is very complex in nature. It is a mixture of many fields such as computer science, mathematics & many other complex sciences and combination of many helps in programming to replicate the cognitive capabilities of human beings & to inculcate in machines.

Error reduction

The AI helps to reduce the errors & increase the chances to reach the accuracy with high degree of precision. Intelligent robots have been fed with the data and are sent to explore the space.

Difficult exploration

Artificial intelligence is used in mining & other exploration processes like fuel exploration. Sometime used in the exploration of the ocean floor & hence may overcome the human limitations. So by using robots we can do difficult & laborious tasks.

#### Daily Applications

Artificial intelligence is also used in many daily applications. A simple example is in a smart phone when we type something the dictionary will fetch some words and show few words, which the user may be thinking. When pictures are uploaded to facebook, it points to tag the person name by detecting the person's face, which will be identified by the AI algorithm.

#### Digital Assistants

Digital assistance is where the judgment would be made correct with the help of Robots which think logically without any emotions whereas humans get distracted with emotions.

#### Repetitive jobs

The monotonous tasks which are repeated in nature will be carried out by the help of machine intelligence. Here machines are faster compared to human beings and also carry out very dangerous tasks which human beings can't.

The parameters of machine can be set, like the speed and time. When human play a game with a computer. We actually interact with an Artificial intelligence, example: A chess game, where we can set the game mode, i.e., Beginner, intermediate or expert.

#### Medical Applications

The Doctors will use the Artificial Machine intelligence to find out health risks of patients. These are artificial surgery simulators. Radio surgery is one of the important AI, where tumors are operated and here it helps to do surgery without affecting the surrounding tissues.

#### Works longer

The Machines work continuously without any breaks, so the machines work longer compared to human beings.

### **Disadvantages**

#### Huge cost

It would require high cost due to the complex machines. Maintenance cost is very high, frequent up-gradation is required for the software.

#### Cannot replicate Human

Human are more intelligent than machine as they could not be able to take their own decision because it is programmed by humans.

As the machine gets experienced there is no improvement. The machines cannot be improved when the environment changes to time once it is programmed it would perform the same operation till the next up-gradation done by humans.

#### Machines are uncreative.

Machines are not intelligent as human being because they cannot think or be creative when required.

### **3. APPLICATIONS**

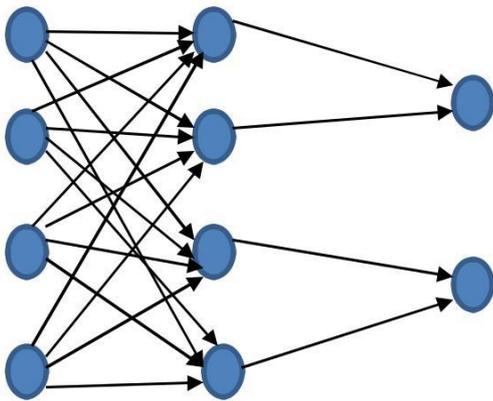
#### Healthcare

In the modern clinical healthcare system its increasing cost, complexity and more treatment options available. If the information would not reach the doctor at the right time they would be not able to take the correct decision which would incur in death of a person.

To overcome the above challenges, they have developed a general purpose framework which helps the system to "think like a doctor". Where the system can decide what treatment can be given to the patients because doctors would require more years to apply the theoretical knowledge into practical, some of the treatment would be no more applicable and new treatment or methods would not be known to the doctors. To cope up with the technology or treatment Artificial Intelligence has been introduced in healthcare. The applications are listed below.

Artificial Neural Networks(ANN)

It is similar to biological brain which can store and retrieve very large amount of data and also helps in classification and recognizing accurately.



Input layer      Hidden layer      Output layer

**Figure 1:** Schematic diagram of Neural Network

Clinical Decision Support System (CDDS)

In clinical Decision support system it would diagnosis the patient’s condition based on the treatment plan and take a correct decision. It increases the quality of care, efficiency and reduces the medical cost.

Robots

Surgery became more accurate and faster and cost effective.

Gamming

The research on Artificial intelligence have been made early by using the common board games like chess, checkers and the 15-puzzle.

Here we can find many search spaces; we can find many powerful techniques to find alternatives to explore.

Heavy Industries

The Artificial Intelligence is to make the manufacturing process entirely automated, maintained and can be controlled by a machine or computer system in many fields like manufacturing of cars, computer chip production and used in many high-tech process.

The Artificial Intelligence can be used to carry out many hazardous/dangerous tasks like handling hazardous/dangerous radio-active materials.

Computer science

The researchers use the Artificial Intelligence for dynamic programming, Symbolic programming and intelligent storage management system and many more tools.

Weather forecast

In predicting weather conditions the neural networks are used. The old data/past data will be fed to the neural networks where it learns the patterns and uses the information to find the weather patterns.

Even if we think, machines got installed, there capabilities are infinite, and the machines will learn whatever we teach. We should take care, whether the systems/machines are working properly to the level expected, so that no problem would occur in future.

#### 4. LIMITATIONS

The artificial intelligence method to solve a problem uses the trained data set to map the relationship between the input and output variables, this gives rise to concerns that it cannot generalize the solution, which is not present in the data set.

The algorithms we use in Artificial intelligence are not guaranteed for an optimal solution. There are some significant evidences to suggest that AI based search methods do yield good solutions in most cases.

The AI methods are built or created full or partial autonomous vehicles, for example if that vehicle involved in any accident or crash or problem.

Who should be made responsible for that? So even though the above problem is not of technical nature, it should be addressed.

Despite of many limitations the artificial intelligence is benefitting Human society to achieve his desires.

#### 5. CONCLUSION

This paper describes about application, methods advantages and disadvantages of Artificial Intelligence in the field of cyber security and computer forensics.

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