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Humanoid

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ABSTRACT

This paper reviews the concept of artificial intelligence and its applications. Artificial Intelligence joins the physical world with the computerized world or may be called as machine world. It contains an overview of the logical and conceptual method for creating a stimulated humanoid. It deals with the basic components of AI for the formation of a humanoid, its applications in real life. This paper concludes with the future aspects of the technology.

Keywords: Artificial Intelligence, Humanoid, Virtual stimulated assistance, The singularity

1. INTRODUCTION

Artificial Intelligence which is sometimes referred to as machine intelligence, is the ability of a machine such as a computer to act and perform the tasks as intellectually as the humans. Intelligence is referred to as the ability to gain knowledge through learning, reasoning, computation, and problem-solving. Simply a machine just tends to think as the human beings for any problem solving or learning the process. AI enables a machine to think in the same manner as the human does. AI bridges the gap between technology and the real life. AI received its existence in the world of technology at a workshop at Dartmouth College in 1956 by Allen Newell, Herbert Simon, John McCarthy, Marvin Minsky, Arthur Samuel. Earlier goals of AI was reasoning, linguistic intelligence, problem-solving etc. but nowadays its main concern is to deal with statistical methods, mathematical optimization, neural networks and computational intelligence. Today Artificial Intelligence can be classified into two basic categories i.e a weak AI and a strong AI.

Weak AI: A weak AI is one which is currently being used nowadays. A weak AI is sometimes referred to as a narrow AI which performs simpler tasks such as voice recognition, face recognition, virtual assistance etc. It is being used at various gaming platforms for a realistic view to some extent.

Strong AI: A strong AI is one which is in the hands of scientists for building the general AIs which would be smarter and intelligent than human beings. These would be outperforming humans in each cognitive task.

The main concerned areas of AI are advanced neural networks, speech and face recognition systems, natural language processors, and computer vision, and robotics, virtual and augmented technologies.

2. COMPONENTS OF AI TO FORM HUMANOID

AI is composed of the following essential key components described below:

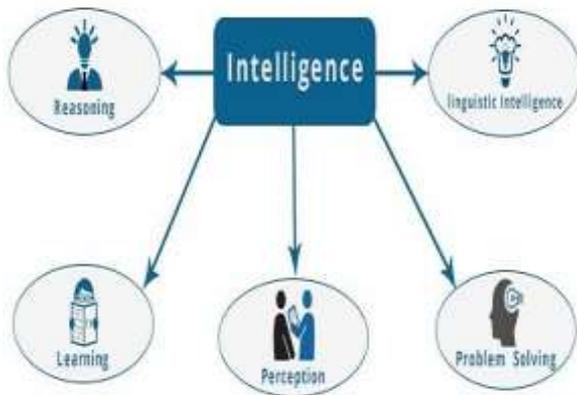
Reasoning: Reasoning is a process of assessing judgment to a given statement as to be true or false. It helps in making decisions and predictions on a set of statements. The reasoning may be inductive or deductive. The reasoning is done through logical deductions in solving a puzzle.

Learning: Learning is an ability to gain knowledge through studying or being taught by someone. Machine learning is making a machine to learn how to take input from the user and how to provide him the output. Machine learning is comprised of classification and regressions. Machines learn through computational algorithms being performed.

Problem Solving: Problem-solving is a way used to receive a solution out of a given complex problem by performing several decision making parameters. Logical calculations are performed in order to get the desired result. The reasoning runs parallel to problem-solving.

Perception: Perception resembles sensing. Several sensors are used in a computer system for receiving inputs from the user and also to provide output. The sensors may be speech recognition sensor, temperature sensor, cameras etc.

Linguistic Intelligence: Linguistic intelligence is the ability to recognize a particular language to perform a specific task. Natural language processors are indulged in order to retrieve the data provided by the humans in written form and to convert the data in machine language for processing the data and again converted back to human understandable high-level language.



All these fields of considerations are incorporated to implement AI i.e. to make a machine think logically and work logically almost as humans.

3. ADVANTAGES OF AI

- Reduce the chances of errors.
- Used for fuel and ocean exploration purpose.
- Daily based applications in virtual assistance.
- Difficult repetitive jobs can be done through machine intelligence.
- Used in detecting and monitoring neurological disorders.
- Machines can work for long without getting bored, tired or distracted.

4. DISADVANTAGES OF AI

- Creation of AI requires a high cost.
- Machines do not have emotions or ethical values; so they cannot replace humans.
- They cannot get improved with any of their personal experience.
- Machines do not have their own creativity rather they just help us to create and design.
- Replacement of humans with machines will lead to unemployment.

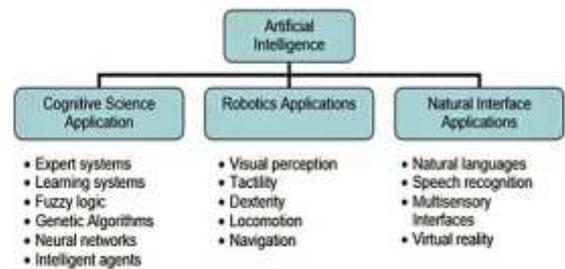
5. CASE STUDY

Robotics in convergence with Artificial Intelligence developed Humanoids. Humanoids are robots with an appearance similar to that of human beings. Stimulated Humanoids are far more developed and advanced than normal robots. They are able to feel some stimulations and are also able to react to them. A humanoid is not only similar to humans in appearance but also have their own logical thinking. Humanoids are able to learn by their selves through the internet. Currently, developers are being looked forward to creating social humanoids. This will bring in a friendly robot in the human environment who would be able to adapt to the social environment and will pursue some emotions. Also, the robots could be able to communicate in the regional language and can translate the data into any of the languages.

The latest research is based upon safe human-robot interactions, social and ethical leaning and emotional expressions. Hybrid technology is being used in this purpose. For improving their emotional factor the neural science is being concerned. To make humanoids more likely to humans they are being made to dance. Genetic programming and evolutionary strategies are being evolved to make the robots dance to express their joy, or to entertain themselves. Recently on 30th October 2017, Saudi Arabia became the first country to give citizenship to a humanoid, named Sophia. A press conference was held in this regard at the capital Riyadh. Sophia is created by Honson Robotics a Hong Kong based company. In the press conference, she addressed the public in English. David Hanson is its manufacturer. This humanoid is based on Artificial Intelligence, visual data processing, and facial recognition. Sophia was activated on 19 April 2015 and it was made similar in recognition to actress Audrey Hepburn. This AI also respond to sarcasms and jokes. Sophia’s software is designed by SingularityNET. This humanoid is advanced than previous robots in order of its appearance and behavior.

6. APPLICATIONS OF HUMANOID

Basically, AI is a branch of computer science but now it has its legs spread in each and every field whether it be shopping, weather reporting or automobile construction. Several Industrial applications of AI are:



Journalism:

Today many of the journals and reports that do not require a lot of personal analysis are being written by machines such as real estate and e-commerce. Writing these reports manually will take a lot of time. However, machines could not write depth-in-data as they require personal experiences and research.

Entertainment:

AI has a vast area of entertainment such as video games. Some music and movies apps are also there which made it all user-friendly for accessing according to his interest.

Online retail stores:

AI helps customers to buy online through providing recommendations based on their interests or previous purchases or through chat box assistances to ease their shopping experiences.

Automobiles:

Google's driverless cars and Tesla's autopilot endorsed the features of AI with the introduction of self-parking, detecting a collision, blind spot detection, voice recognition, navigation etc...

Banking and finance:

AI is being used instead of humans to keep track of user's account, transaction or analyzing market data to forecast change in stocks trend.

Healthcare:

AI is being used by doctors for diagnosing and monitoring patients which helps in lowering the no. of heavy equipment and human resource.

Online customer service: Some websites use AI to entertain the queries of customers to provide them better service response.

Smart phones:

The very basic feature of AI that we are using in our day to day life is virtual personal assistants like Siri, Cortana and Google Now in IOS, Android, and Windows.

Aviation: The Air Operation Division uses AI systems for training their employees. They use simulators to make them familiar about the difficulties of the sky, about the tactical decisions they have to make while any problematic circumstance etc.

Market analysis and data mining: BlackRock's use an AI engine called Alladin which used both inside and outside the company to take investment related decisions and to check stock market on particular time interval basis. UBS and Deutsche use Sqreem AI which is used to mine data to match the customer's profile with identity or other proofs provided by him.

Heavy industry: AI developed robots which are being widely used for various automation and heavy industry. In 2014, China, Japan, the United States, the Republic of Korea and Germany together amounted to 70% of the total sales volume of robots. In the automotive industry, a sector with a particularly high degree of automation, Japan had the highest density of industrial robots in the world: 1,414 per 10,000 employees.

7. FUTURE ASPECTS OF THE PROJECT

Today Artificial Intelligence is a vast field but in the future, it will be beyond our imaginations. AI has the tremendous capability to build the future of the mankind or to destroy it. Today the machines understand everything in structured English, but in the future may be it would understand the unstructured one also. It is expected that the machines would think better than humans and would perform better than humans. Robots in the future may have greater ability to understand and translate any language and may be able to revert back to human in the same language in the form of voice. There will be a great advancement in the field of speech recognition system. Robots might have human-like features such as emotions, consciousness, learning ability etc.. The expectations through the technology is very great in

order to serve the humanity. But no one knows how much time it would take to bring the evolutions in the technology. Everything about the future of AI is a theoretical concept today; no one is known to its affects that they would be positive or negative. To bring the imagination real considerable amount of time and computations are to be done. Developers such as Google's DeepMind and Elon Musk's Open AI use several games to make the AI learn.

8. CONCLUSION

The main goal of Artificial Intelligence is to create machines which are intelligent in terms of human brains and to bring expert systems in every field including medical, education, business, manufacturing, defense etc. This will a revolution by reducing human efforts and higher rates of accuracy in each and every field. But many fictional stories based on AI's describes a concept called "the singularity" which shows how AI's becomes more intelligent than its creator. None of the AI oppositions are totally against its development rather they want the government to impose several regulations. Now we have the first generation of AI which depends upon the orders of human but the third generation would be smarter enough to do several tasks by themselves. We cannot predict whether the development of AI would bring the humanity a bed of roses or end up destroying it totally.

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