SEMINAR REPORT ON ARTIFICIAL INTELLIGENCE

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ABSTRACT

This report is about Artificial intelligence (AI). Artificial intelligence is exhibited by artificial entity, a system is generally assumed to be a computer. AI systems are now in routine use in economics, medicine, engineering and the military, as well as being built into many common home computer software applications, traditional strategy games like computer chess and other video games.
Intelligence involves mechanisms, and AI research has discovered how to make computers carry out some of them and not others. If doing a task requires only mechanisms that are well understood today, computer programs can give very impressive performances on these tasks. Such programs should be considered ``somewhat intelligent''. It is related to the similar task of using computers to understand human intelligence.

What is Artificial Intelligence?

According to the father of Artificial Intelligence, John McCarthy, it is *"The science and engineering of making intelligent machines, especially intelligent computer programs".*

Artificial Intelligence is a way of **making a computer, a computer-controlled robot, or a software think intelligently**, in the similar manner the intelligent humans think.

AI is accomplished by studying how human brain thinks, and how humans learn, decide, and work while trying to solve a problem, and then using the outcomes of this study as a basis of developing intelligent software and systems.

What Contributes to AI?

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

Out of the following areas, one or multiple areas can contribute to build an intelligent system.

Applications of AI

AI has been dominant in various fields such as −

- **Gaming** − AI plays crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where machine can think of large number of possible positions based on heuristic knowledge.
- **Natural Language Processing** − It is possible to interact with the computer that understands natural language spoken by humans.
- **Expert Systems** − There are some applications which integrate machine, software, and special information to impart reasoning and advising. They provide explanation and advice to the users.
- **Vision Systems** − These systems understand, interpret, and comprehend visual input on the computer. For example,

- A spying aeroplane takes photographs, which are used to figure out spatial information or map of the areas.
- Doctors use clinical expert system to diagnose the patient.
- Police use computer software that can recognize the face of criminal with the stored portrait made by forensic artist.

- **Speech Recognition** − Some intelligent systems are capable of hearing and comprehending the language in terms of sentences and their meanings while a human talks to it. It can handle different accents, slang words, noise in the background, change in human's noise due to cold, etc.
- **Handwriting Recognition** − The handwriting recognition software reads the text written on paper by a pen or on screen by a stylus. It can recognize the shapes of the letters and convert it into editable text.
- **Intelligent Robots** − Robots are able to perform the tasks given by a human. They have sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. They have efficient processors, multiple sensors and huge memory, to exhibit intelligence. In addition, they are capable of learning from their mistakes and they can adapt to the new environment.

Pros and Cons of Artificial Intelligence

Pros

‣ With artificial intelligence, the chances of error are almost nil and greater precision and accuracy is achieved.

‣ Intelligent machines can replace human beings in many areas of work. Robots can do certain laborious tasks. Painstaking activities, which have long been carried out by humans can be taken over by the robots. Owing to the intelligence programmed in them, the machines can shoulder greater responsibilities and can be programmed to manage themselves.

‣ Smartphones are a great example of the application of artificial intelligence. In utilities like predicting what a user is going to type and correcting human errors in spelling, machine intelligence is at work. Applications like Siri that act as personal assistants, GPS and Maps applications that give users the best or the shortest routes to take as well as the traffic and time estimates to reach there, use artificial intelligence. Applications on phones or computers that predict user actions and also make recommendations that suit user choice, are applications of AI. Thus, we see that artificial intelligence has made daily life a lot easier.

‣ Organizations use chatbots that are digital assistants who interact with the users, thus saving the need of human resources.

‣ Artificial intelligence can be utilized in carrying out repetitive and time-consuming tasks efficiently.

‣ When we play a computer game or operate a computer-controlled bot, we are in fact interacting with artificial intelligence. In a game where the computer plays as our opponent, it is with the help of AI that the machine plans the game moves in response to ours. Thus, gaming is among the most common examples of the advantages of artificial intelligence.

‣ AI is at work in the medical field too. Algorithms can help the doctors assess patients and their health risks. It can help them know the side effects that various medicines can have. Surgery simulators use machine intelligence in training medical professionals. AI can be used to simulate brain functioning, and thus prove useful in the diagnosis and treatment of neurological problems. As in case of any other field, repetitive or time-consuming tasks can be managed through the application of artificial intelligence.

‣ The greatest advantage of artificial intelligence is that machines do not require sleep or breaks, and are able to function without stopping. They can continuously perform the same task without getting bored or tired. When employed to carry out dangerous tasks, the risk to human health and

safety is reduced.

Cons

‣ One of the main disadvantages of artificial intelligence is the cost incurred in the maintenance and repair. Programs need to be updated to suit the changing requirements, and machines need to be made smarter. In case of a breakdown, the cost of repair may be very high. Procedures to restore lost code or data may be time-consuming and costly.

‣ Machines may be able to store enormous amounts of data, but the storage, access, and retrieval is not as effective as in case of the human brain. They may be able to perform repetitive tasks for long, but they do not get better with experience, like humans do. They are not able to act any different from what they are programmed to do. Though this is mostly seen as an advantage, it may work the other way, when a situation demands one to act in way different from the usual. Machines may not be as efficient as humans in altering their responses depending on the changing situations.

‣ Imagine intelligent machines employed in creative fields. Do you think robots can excel or even compete the human mind in creative thinking or originality? Thinking machines lack a creative mind. Human beings are emotional intellectuals. They think and feel. Their feelings guide their thoughts. This is not the case with machines. The intuitive abilities that humans possess, the way humans can judge based on previous knowledge, the inherent abilities that they have, cannot be replicated by machines. Also, machines lack common sense.

‣ If robots begin to replace humans in every field, it will eventually lead to unemployment. People will be left with nothing to do. So much empty time may result in its destructive use. Thinking machines will govern all the fields and populate the positions that humans occupy, leaving thousands of people jobless.

‣ Also, due to the reduced need to use their intelligence, lateral thinking and multitasking abilities of humans may diminish. With so much assistance from machines, if humans do not need to use their thinking abilities, these abilities will gradually decline. With the heavy application of artificial intelligence, humans may become overly dependent on machines, losing their mental capacities.

‣ If the control of machines goes in the wrong hands, it may cause destruction. Machines won't think before acting. Thus, they may be programmed to do the wrong things, or for mass destruction.

It should be understood that artificial intelligence has several pros but it has its disadvantages as well. Its benefits and risks should be carefully weighed before employing it for human convenience.

FUTURE SCOPE OF A.I

- In the next 10 years technologies in narrow fields such as speech recognition will continue toimprove and will reach human levels.
- In 10 years AI will be able to communicate with humans in unstructured English using textor voice, navigate (not perfectly) in an unprepared environment and will have some rudimentary common sense.
- The expansion of AI use may also result in the transformation of work culture, where people will be more challenged to do better than robots and be knowledgeable in robot use. In the tech world, it would certainly be more advantageous, and more lucrative, to have credentials in machine learning, especially as robots would most likely provide the best solutions to business problems.
- Machine can react or act like us only if they have plentiful of knowledge of Human Beings. It would be impossible for us to live without computer systems. Cars , ATM machines ,and everything which works automatically have computer system inbuilt. Soon Artificial intelligence machines can do all those things that we can barely do.

CONCLUSION

We conclude that if the machine could successfully pretend to be human to a knowledgeable observer then you certainly should consider it intelligent. AI systems are now in routine use in various field such as economics, medicine, engineering and the military, as well as being built into many common home computer software applications, traditional strategy games etc.

AI is an exciting and rewarding discipline. AI is branch of computer science that is concerned with the automation of intelligent behavior. The revised definition of AI is

- AI is the study of mechanisms underlying intelligent behavior through the construction and evaluation of artifacts that attempt to enact those mechanisms. So it is concluded that it work as an artificial human brain which have an unbelievable artificial thinking power.