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FACULTY OF EGINEERING

ARTIFICIAL INTELLIGENCE
LECTURE-01

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OUTLINE

- Introduction
- What is Artificial Intelligence?
- Comprises to Artificial Intelligence
- Advantages of Artificial Intelligence
- Disadvantages of Artificial Intelligence
- MCQ
- References

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Artificial Intelligence

The Artificial Intelligence tutorial provides an introduction to AI which will help you to understand the concepts behind Artificial Intelligence. In this tutorial, we have also discussed various popular topics such as History of AI, applications of AI, deep learning, machine learning, natural language processing, Reinforcement learning, Q-learning, Intelligent agents, Various search algorithms, etc.

Our AI tutorial is prepared from an elementary level so you can easily understand the complete tutorial from basic concepts to the high-level concepts.

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What is Artificial Intelligence?

▪The Artificial Intelligence is now all around us. It is currently working with a variety of subfields, ranging from general to specific, such as self-driving cars, playing chess, proving theorems, playing music, Painting, etc.

▪AI is one of the fascinating and universal fields of Computer science which has a great scope in future. AI holds a tendency to cause a machine to work as a human.

▪Artificial Intelligence is composed of two words Artificial and Intelligence, where Artificial defines *"man-made,"* and intelligence defines *"thinking power"*, hence AI means *"a man-made thinking power."*

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"It is a branch of computer science by which we can create intelligent machines which can behave like a human, think like humans, and able to make decisions."

Comprises to Artificial Intelligence

▪Artificial Intelligence is not just a part of computer science even it's so vast and requires lots of other factors which can contribute to it. To create the AI first we should know that how intelligence is composed, so the Intelligence is an intangible part of our brain which is a combination of Reasoning, learning, problem-solving perception, language understanding, etc.

▪To achieve the above factors for a machine or software Artificial Intelligence requires the following discipline:

- ❑Mathematics
- ❑Biology
- ❑Psychology
- ❑Sociology
- ❑Computer Science
- ❑Neurons Study
- ❑Statistics

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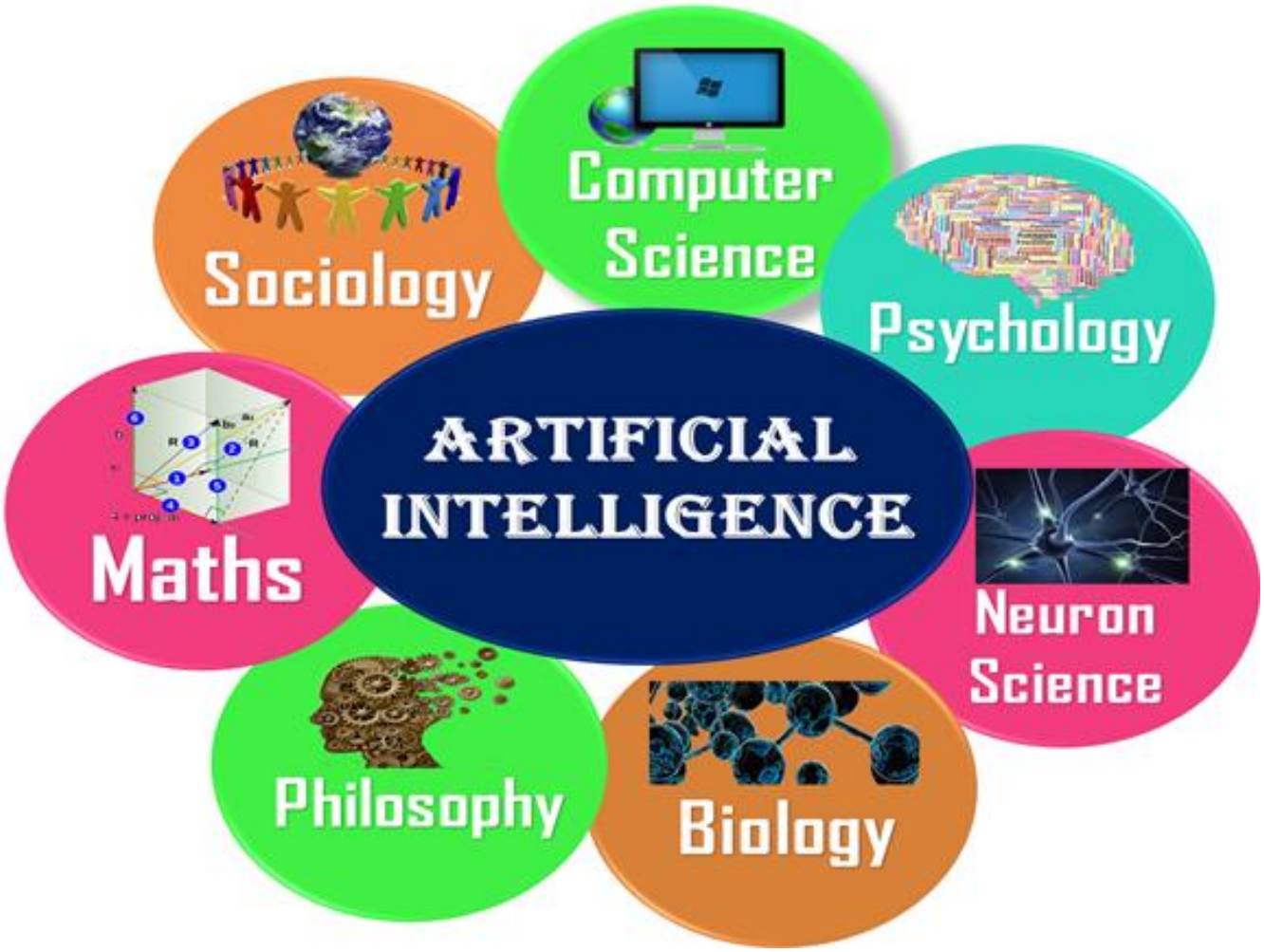
Comprises to Artificial Intelligence



Advantages of Artificial Intelligence

Following are some main advantages of Artificial Intelligence:

- **High Accuracy with less errors:** AI machines or systems are prone to less errors and high accuracy as it takes decisions as per pre-experience or information.
- **High-Speed:** AI systems can be of very high-speed and fast-decision making, because of that AI systems can beat a chess champion in the Chess game.
- **High reliability:** AI machines are highly reliable and can perform the same action multiple times with high accuracy.
- **Useful for risky areas:** AI machines can be helpful in situations such as defusing a bomb, exploring the ocean floor, where to employ a human can be risky.
- **Digital Assistant:** AI can be very useful to provide digital assistant to the users such as AI technology is currently used by various E-commerce websites to show the products as per customer requirement.
- **Useful as a public utility:** AI can be very useful for public utilities such as a self-driving car which can make our journey safer and hassle-free, facial recognition for security purpose, Natural language processing to communicate with the human in human-language, etc.

Disadvantages of Artificial Intelligence

Every technology has some disadvantages, and the same goes for Artificial intelligence. Being so advantageous technology still, it has some disadvantages which we need to keep in our mind while creating an AI system. Following are the disadvantages of AI:

- **High Cost:** The hardware and software requirement of AI is very costly as it requires lots of maintenance to meet current world requirements.
- **Can't think out of the box:** Even we are making smarter machines with AI, but still they cannot work out of the box, as the robot will only do that work for which they are trained, or programmed.
- **No feelings and emotions:** AI machines can be an outstanding performer, but still it does not have the feeling so it cannot make any kind of emotional attachment with human, and may sometime be harmful for users if the proper care is not taken.
- **Increase dependency on machines:** With the increment of technology, people are getting more dependent on devices and hence they are losing their mental capabilities.
- **No Original Creativity:** As humans are so creative and can imagine some new ideas but still AI machines cannot beat this power of human intelligence and cannot be creative and imaginative.

MCQ

1. In LISP, the function returns the list that results after the first element is removed (the rest f the list), is _____

a) car

b) last

c) cons

d) cdr

2. Which of the following contains the output segments of Artificial Intelligence programming?

a) Printed language and synthesized speech

b) Manipulation of physical object

c) Locomotion

d) All of the mentioned

3. LISP was created by?

a) John McCarthy

b) Marvin Minsky

c) Alan Turing

d) Allen Newell and Herbert Simon

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MCQ

4. Expert Ease was developed under the direction of _____

a) John McCarthy

b) Donald Michie

c) Lofti Zadeh

d) Alan Turing

5. An Artificial Intelligence system developed by Terry A. Winograd to permit an interactive dialogue about a domain he called blocks-world.

a) SHRDLU

b) SIMD

c) BACON

d) STUDENT

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