Introduction AI

❖ **Introduction to Artificial Intelligence**

❖ **Basics for non-computer science background**

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Outline this course

- ▪ Introduction to Artificial Intelligence
- ▪Importance of Artificial Intelligence
- ▪Goals of Artificial Intelligence
- ▪ Advantages and Disadvantages
- ▪ AI Main Branches

INTRODUCTION

- ▪ In today's world, technology is growing very fast, and we are getting in touch with different new technologies day by day.

- One of the booming technologies of computer science is Artificial Intelligence which is ready to create a new revolution in the world by making intelligent machines.

- ▪ It is currently working with a variety of subfields, ranging from general to specific, such as self-driving cars, surgery, proving theorems, analyzing sentiments and feedbacks, Painting, etc.

INTRODUCTION

- ▪ 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.

Introduction

▰ **Artificial Intelligence is composed of two words:**

▰ **▪ Artificial: "man-made"**

▰ **▪ Intelligence: "thinking power" OR "Ability to learn, think, reason, and solve problems" ▪ Hence AI means "a man-made thinking power."**

▰ **▪ AI is defined as: "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." OR**

▰ **▪ Machines performing tasks that require human intelligence**

WHY IS AI IMPORTANT?

- ▪ Why we should know about AI?, the main reasons are:

- ▪ With the help of AI, you can create such software or devices which can solve real-world problems very easily and with accuracy such as health issues, marketing, traffic issues, etc.

- ▪ With the help of AI, you can create your personal virtual Assistant, such as Cortana, Google Assistant, Siri, etc.

- ▪ With the help of AI, you can build such Robots which can work in an environment where survival of humans can be at risk.

- ▪ AI opens a path for other new technologies, new devices, and new opportunities.

MAIN GOALS OF AI

- 1.Replicate human intelligence

- 2. Solve Knowledge-intensive tasks

- 3. An intelligent connection of perception and action

- 4. Building a machine which can perform tasks that requires human intelligence such as: ▪ Plan surgery, Driving a car in traffic, Proving a theorem etc.

- 5. Creating some systems which can exhibit intelligent behavior, learn new things by itself, demonstrate, explain, and can advise to its user.

ADVANTAGES OF AI

➼ ▪ The 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(Deep blue vs Gary Kasparov) in the Chess game.

➼ ▪ High reliability: AI machines are highly reliable and can perform the same action multiple times with high accuracy

➼ ▪ The main advantages of Artificial Intelligence:

➼ ▪ 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.

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: 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 feelings so it cannot make any kind of emotional attachment with human.**

- ▪ **Increase dependency on machines: people are getting more dependent on devices and are losing their mental capabilities**

Branch of AI

- ▪ **Machine Learning: AI that learns from data**
- ▪ **Natural Language Processing: Understanding human language**
- ▪ **Computer Vision: Understanding images and videos**
- ▪ **Robotics: AI + machines**
- ▪ **Expert Systems: Rule-based decision systems**

AI

ML

DL