

1

The Artificial Intelligence



LEARNING OUTCOMES

At the end of the chapter, students will be able to:

- ▶ Outline the history of artificial intelligence
- ▶ Definition of artificial intelligence
- ▶ Understand the need of AI
- ▶ Explain how AI works?
- ▶ Identify the traits of human intelligence
- ▶ Differentiate between human intelligence and AI
- ▶ Outline the pros and cons of AI
- ▶ Explain the types of AI
- ▶ Differentiate between the domains of AI
- ▶ Measure the future of AI
- ▶ Elaborate how gamification uses AI?

CHAPTER NOTES

- ▶ The history of AI dates back to the mid-20th century, with early attempts at creating machines capable of human-like intelligence.
- ▶ AI refers to the simulation of human intelligence processes by machines, including learning, reasoning, and problem-solving.
- ▶ It's needed to automate tasks, analyse large datasets, and provide insights beyond human capacity.
- ▶ AI operates through algorithms that process data and learn patterns, often using neural networks and machine learning techniques.
- ▶ Human intelligence involves traits like creativity, emotional understanding, and common-sense reasoning, which AI struggles to replicate fully.
- ▶ While AI can process vast amounts of data quickly and accurately, it lacks human qualities such as genuine understanding, empathy, and adaptability to diverse contexts.
- ▶ Its pros include efficiency, scalability, and the potential to tackle complex problems, but cons encompass job displacement, bias amplification, and ethical concerns.
- ▶ The future of AI holds promise in fields like healthcare, automation, and scientific research, but it also raises questions about ethics, regulation, and the nature of work as AI becomes more integrated into society.
- ▶ Narrow AI is designed for a specific task and lacks general human-like intelligence.
- ▶ General AI possesses human-like intelligence and can perform any intellectual task a human can do.

- ASI would surpass human intelligence and capabilities in virtually every aspect.
- Reactive machines operate based on predefined rules and lack learning or memory capabilities.
- Limited memory AI systems can learn from historical data to improve future decisions.
- Theory of mind AI would understand human emotions, beliefs, intentions, and interact more naturally.
- Self-aware AI would have a sense of consciousness and self-identity.
- Data Science is the study of Data, this data can be of three types – Audio, Visual and Textual.
- The ability of computer to understand human language (command) as spoken or written and to give an output by processing it, is called Natural Language Processing (NLP).
- Computer Vision in simple words is identifying the symbols from the given object (pictures) and learning the pattern and alert or predicting the future object using the camera.
- Computer vision is a field of artificial intelligence that focuses on enabling machines to interpret and understand visual information from the world.
- Gamification using AI involves utilising AI algorithms to enhance game experiences, personalise content, and create dynamic challenges based on player behaviour.