Insights on Artificial Intelligence

Sanika Swapna*

Department of Biotechnology, Osmania University, Hyderabad, Telangana, India

Commentary

Artificial Intelligence (AI) is the branch of computer science that seeks to answer Turing's question in the affirmative. It is the attempt to simulate or replicate human intelligence in machines. The broad goal of artificial intelligence has sparked numerous questions and debates. As a result, no single definition of the field is universally accepted. In their groundbreaking textbook Artificial Intelligence A Modern Approach, question by unifying their work around the theme of intelligent agents in machines. With this in mind, AI is "the study of agents that receive percepts from the environment and perform actions."

A reactive machine adheres to the most fundamental AI principles and, as the name suggests, is only capable of using its intelligence to perceive and react to the world in front of it. Because a reactive machine lacks memory, it cannot rely on past experiences to inform real-time decision making. Because reactive machines perceive the world directly, they are only capable of performing a limited number of specialized tasks. However, intentionally narrowing a reactive machine's worldview is not a cost-cutting measure; rather, it means that this type of AI will be more trustworthy and reliable it will respond consistently to the same stimuli.

Deep Blue, which was designed by IBM in the as a chess-playing supercomputer and defeated international grandmaster Gary Kasparov in a game, is a well-known example of a reactive machine. Deep Blue could only identify the pieces on a chess board and know how each moves according to the rules of chess, acknowledge each piece's current position, and determine what the most logical move would be at that time. The computer was not anticipating potential moves by its opponent or attempting to better position its own pieces. Every turn was regarded as a separate reality, distinct from any previous movement.

When gathering information and weighing potential decisions, artificial intelligence with limited memory has the ability to store previous data and predictions essentially looking into the past for clues on what may come next. Artificial intelligence with limited memory is more complex and offers more possibilities than reactive machines. Memory problems AI is created when a team continuously trains a model to analyses and use new data, or when an AI environment is built to allow models to be automatically trained and renewed. Six steps must be taken when using limited memory AI in machine learning.

E-GANs (Evolutionary Generative Adversarial Networks) are networks that evolve over time, growing to explore slightly modified paths based on previous experiences with each new decision. This model is always looking for a better path and uses simulations, statistics, or chance to predict outcomes throughout its evolutionary mutation cycle. Theory of Mind is, well, theoretical. We have not yet developed the technological and scientific capabilities required to achieve this next level of artificial intelligence. The concept is based on the psychological premise that other living things have thoughts and emotions that influence one's own behavior.

In terms of AI machines, this means that AI will be able to understand how humans, animals, and other machines feel and make decisions through self-reflection and determination, and will then use that information to make their own decisions. Machines would essentially have to be able to grasp and process the concept of "mind," the fluctuations of emotions in decision making, and a slew of other psychological concepts in real time, establishing a two-way relationship between people and artificial intelligence [1-5].

References

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*Address for Correspondence: Sanika Swapna, Department of Biotechnology, Osmania University, Hyderabad, Telangana, India, E-mail: sanika.swapna25@gmail.com