Overview of Artificial Intelligence

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Description

Artificial intelligence (AI) refers to intelligence demonstrated by machines as opposed to natural intelligence showed by humans and animals, which includes consciousness and emotionality. The acronym chosen frequently reveals the distinction between the first and second groups. Artificial general intelligence (AGI) is the term used to describe 'strong' AI, whereas artificial biological intelligence (ABI) is used to describe attempts to mimic 'natural' intelligence (ABI). Leading AI textbooks define AI as the study of "intelligent agents," or devices that sense their environment and take activities that increase their chances of attaining their objectives. The term is commonly used in a colloquial sense. Machines that simulate "cognitive" functions that humans connect with the human mind, such as "learning" and "problem solving," are referred to as "artificial intelligence."

The AI effect is a phenomenon that occurs as machines grow more proficient and jobs believed to require "intelligence" are often eliminated from the concept of AI. "AI is whatever hasn't been done yet," Tesler says in his Theorem. Optical character recognition, for example, is typically left out of AI discussions despite the fact that it has become a commonplace technique. Successfully understanding human speech, competing at the highest level in strategic game systems (such as chess and Go), and imperfect-information games like poker, self-driving cars, intelligent routing in content delivery networks, and military simulations are all examples of modern machine capabilities that are generally classified as AI.

Since its inception as an academic study in 1955, artificial intelligence has gone through multiple waves of optimism, disappointment, and funding cuts (known as a "AI winter"), followed by new approaches, success, and renewed investment. In 2015, AlphaGo defeated a professional Go player. Artificial intelligence has once again piqued the public's interest around the world. For the most part, AI research has been split into sub-fields that rarely communicate with one another. These sub-fields are defined by technological factors such as specific aims (for example, "robotics" or "machine learning"), and the usage of certain tools ("logic" or artificial neural networks), or profound philosophical disagreements Social influences (specific institutions or the activity of specific researchers, for example) have also influenced sub-fields.

Reasoning, knowledge representation, planning, learning, natural language processing, sensing, and the ability to move and manipulate objects are some of the traditional issues (or aims) of AI study. AGI is one of the field's long-term objectives. Statistical methodologies, computational intelligence, and classical symbolic AI are among the approaches. AI employs a variety of tools, including variations of search and mathematical optimization, artificial neural networks, and statistics, probability, and economics-based methodologies. Computer science, information engineering, mathematics, psychology, linguistics, philosophy, and a variety of other subjects are all used in AI.

Human intelligence "can be so clearly described that a machine can be constructed to imitate it," according to the field's founders. This sparks philosophical debates about the mind and the ethics of building artificial intelligence that is human-like. Since antiquity, myth, fiction, and philosophy have all attempted to address these challenges. Some people believe that if AI continues to advance at its current rate, it will pose a threat to humans. Others predict that, unlike earlier technology revolutions, AI will result in widespread unemployment.

Following concurrent advances in computer power, large amounts of data and theoretical understanding in the twenty-first century, AI techniques have experienced a resurgence, and AI techniques have become an essential part of the technology industry, helping to solve many challenging problems in computer science, software engineering, and operations research.