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**Benha University**

**Research Article / Research Project / Literature Review**

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**Artificial Intelligence**

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**Research objectives**

I intend to write this rewrite to speak about artificial intelligence

**Abstract**

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**Introduction**

In computer science, artificial intelligence (AI), sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and animals. Leading AI textbooks define the field as the study of intelligent agents: any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Colloquially, the term artificial intelligence is often used to describe machines (or computers) that mimic cognitive functions that humans associate with the human mind, such as learning and problem solving

**Literature Review**

Artificial intelligence is the behavior and specific characteristics of computer programs that make them mimic human mental capabilities and working patterns. Among the most important of these characteristics is the ability to learn, infer and react to situations not programmed in the machine . However, this term is controversial due to the lack of a specific definition of intelligence .And artificial intelligence is a branch of computer science . Artificial intelligence is defined by many works as "the study and design of smart clients", and a smart customer is a system that absorbs its environment and takes situations that increase its chance of success in achieving its mission or the mission of its team .This definition, in terms of goals, actions, perception, and environment, refers to Russell & Norvig (2003) and other definitions also include knowledge and learning as additional criteria. Computer scientist John McCarthy originally coined this term in 1956 ,  and defined himself as "the science and engineering of making smart machines."  Andreas Kaplan and Michael Heinleen define artificial intelligence as "the ability of a system to properly interpret external data, learn from this data, and use that knowledge to achieve specific goals and tasks through flexible adaptation." This field was founded on the assumption that the intelligence kingdom can be described accurately enough to simulate the machine. This raises a philosophical debate about the nature of the human mind and the limits of scientific approaches, issues that have been discussed in legendary, fictional and philosophical discussions and tales from ancient times.  Controversy also revolves around what intelligence and its types a person possesses , and how they are simulated by a machine . Artificial intelligence was and still is the cause of highly optimistic ideas, and it has suffered severe setbacks throughout history, and

today it has become an essential part of the technology industry , carrying the burden of the most difficult problems.

The first researchers in artificial intelligence developed algorithms that simulate the logical, logical reasoning that humans do when solving puzzles, playing table or logical conclusions.  In the 1980s and 1990s, AI research led to highly successful methods of dealing with uncertain or incomplete information, using concepts of probability and economics. For difficult problems , most of these algorithms require massive arithmetic resources - leading to a "fusion explosion": meaning that the amount of memory or time required for computers becomes an astronomer when the problem exceeds a certain size. The search for more problem solving algorithms is a top priority for AI research. Humans solve most of their problems by using quick, intuitive, and not conscious judgments, by a gradual deduction that enables the first researchers of artificial intelligence to simulate it automatically.  Research on artificial intelligence has made some progress in imitating this “sub-symbolic” type of problem-solving skills: the approaches involved include ensuring the importance of kinesthetic skills for superior thinking; research in the field of neural networks tries to simulate structures within the human and animal brain that lead to emergence. This skill

Artificial intelligence has been used successfully in a wide range of areas including expert systems, natural language processing, voice recognition, image discrimination and image analysis as well as medical diagnostics, stock trading, automated control, law, scientific discoveries, video games, toys and search engines on the Internet. Often times, when technology is widely used and not seen as an artificial intelligence, it is sometimes described as the effect of artificial intelligence. It can also be incorporated into artificial life.

* **Artificial Intelligence Philosophy**

Honda Asimo robot: artificial intelligence is an inspiration and a challenge to the science of philosophy; Because it has the power to recreate the capabilities of the human mind.

* Turing's Law (Calculating Machines and Intelligence): We judge machine intelligence based on its performance; Whereas if the device works with an intelligence comparable to that of a person, then its intelligence is similar to that of a person.
* Dartmouth Thesis: Every aspect of the learning process is an aspect of intelligence that enables a person to design a machine that mimics it.
* The incompleteness theorem of its owner Goodle: No logical system can prove all the correct sentences. Roger Penrose and others saw that this theory did not set limits for what a person can do but rather set limits for what machines can do.
* Noel and Simon's system hypothesis of physical symbols: the essence of intelligence is the ability to manipulate symbols.
* The artificial brain hypothesis: Ray Karzweil, Hans Morvik, and others have argued that it is possible to copy the brain directly into software and hardware technically.
* Searle's Hypothesis on Strong Artificial Intelligence: Known as the Chinese Chamber, it centers around the possibility that a computer can have a brain similar to the human brain if it is appropriately programmed with the correct inputs and outputs

**Conclusions**

Most researchers hope that their work will eventually merge into a machine with general intelligence '(known as strong artificial intelligence), combining all the aforementioned skills and exceeding most or all of human capabilities. [9] Some believe that this project requires artificial human features such as artificial awareness or artificial brain

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