Research Article / Research Project / Literature Review

in fulfillment of the requirements of

Department	Engineering Mathematics and Physics
Division	-----------
Academic Year	**2019-2020 Preparatory**
Course name	**Computer**
Course code	**ECE001**

Title: -

ARTIFICIAL INTELLIGENCE

By:

	Name	Edu mail	B.N
1	Mohamed Hassan aboelela ibrahim	muhammed195769@feng.bu.edu.eg	689

Approved by:

Examiners committee	Signature
Dr.Ahmed Bayoumi	
Dr.Shady Elmashad	
Dr.Abdelhamid Attaby	

Research objectives

The objective of this research is to study the meaning

and applications of artificial intelligence and create a

website to demonstrate that.

GitHub:

https://github.com/moabo/html_project

GitHub Pages:

https://moabo.github.io/html_project/

Abstract

Artificial intelligence (AI) is a relatively new branch of computer science. A tremendous amount of effort has been put into research associated with understanding biological systems, abstracting key principles of intelligent behavior, and developing practical applications of AI since the year 2000. The ultimate goal of this science is reaching "Strong AI". However, humanity must be careful with creation of artificial intelligence that is similar and, perhaps, to some extent, identical to the human being.

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Introduction

First, we need to answer the question of what is Artificial Intelligence?

Back in the 1950s, the fathers of the field Minsky and McCarthy, described artificial intelligence as any task performed by a program or a machine that, if a human carried out the same activity, we would say the human had to apply intelligence to accomplish the task. That obviously is a fairly broad definition, which is why you will sometimes see arguments over whether something is truly AI or not. AI systems will typically demonstrate at least some of the following behaviors associated with human intelligence: planning, learning, reasoning, problem solving, knowledge representation, perception, motion, and manipulation and, to a lesser extent, social intelligence and creativity.

Literature Review

Artificial intelligence has different type each one is suited for a certain type of work.

Arend Hintze, an assistant professor of integrative biology and computer science and engineering at Michigan State University, explained in a 2016 article that AI can be categorized into four types, beginning with the task-specific intelligent systems in wide use today and progressing to sentient systems, which do not yet exist. The categories are as follows:

- **Reactive machines**
    - Good for simple classification and pattern recognition tasks.
    - Great for scenarios where all parameters are known.

- **Limited memory**
    - Can handle complex classification tasks.
    - capable of complex tasks such as self-driving cars

- **Theory of mind**
    - Able to understand Human motives a reasoning.
    - Can learn with fewer examples because it understands motive and intent

- **Self-awareness**
    - Human level intelligent that can bypass our intelligence, too.

As the hype around AI has accelerated, vendors have been scrambling to promote how their products and services use AI. Often what they refer to as AI is simply one component of AI, such as machine learning. AI requires a foundation of specialized hardware and software for writing and training machine learning algorithms. No one programming language is synonymous with AI, but a few, including Python, R and Java, are popular.

Results and discussion

It is well noted that we come across an AI application almost every day, these are some examples of these applications:

Automation

> When paired with AI technologies, automation tools can expand the volume and types of tasks performed. An example is robotic process automation (RPA), a type of software that automates repetitive, rules-based data processing tasks traditionally done by humans. When combined with machine learning and emerging AI tools,

Machine learning

> Deep learning is a subset of machine learning that, in very simple terms, can be thought of as the automation of predictive analytics. There are three types of machine learning algorithms:

- Supervised learning
- Unsupervised learning
- Reinforcement learning

Self-driving cars

> Autonomous vehicles use a combination of computer vision, image recognition and deep learning to build automated skill at piloting a vehicle while staying in a given lane and avoiding unexpected obstructions, such as pedestrians.

Website code and screen shots

ARTIFICIAL INTELLIGENCE

WHAT IS ARTIFICIAL INTELLIGENCE (AI)?

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<li><a href="components_of_ai.html">Components of AI</a></li>
<li><a href="use.html">Ethical Use of AI</a></li>
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ARTIFICIAL INTELLIGENCE

Types Of ARTIFICIAL INTELLIGENCE

Arend Hintze, an assistant professor of integrative biology and computer science and engineering at Michigan State University, explained in a 2016 article that AI can be categorized into four types, beginning with the task-specific intelligent systems in wide use today and progressing to sentient systems, which do not yet exist. The categories are as follows:

Reactive machines	Limited memory	Theory of mind	Self-awareness
• Good for simple classification and pattern recognition tasks. • Great for scenarios where all parameters are known.	• Can handle complex classification tasks. • capable of complex tasks such as self-driving cars	• Able to understand Human motives an reasoning. • Can learn with fewer examples because it understand motive and intent	• Human level intelligent that can bypass our intelligence,too.

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Conclusions

Artificial intelligence is no longer that sci-fi thing we only see in movies.

But still have some concerns around it weather it is Ethical or not?

While AI tools present a range of new functionality for businesses, the use of artificial intelligence also raises ethical questions because, for better or worse, an AI system will reinforce what it has already learned. This can be problematic because machine learning algorithms, which underpin many of the most advanced AI tools, are only as smart as the data they are given in training. Because a human being selects what data is used to train an AI program, the potential for machine learning bias is inherent and must be monitored closely. Anyone looking to use machine learning as part of real-world, in-production systems needs to factor ethics into their AI training processes and strive to avoid bias. This is especially true when using AI algorithms that are inherently unexplainable in deep learning and generative adversarial network (GAN) applications.

References

the Egyptian Knowledge Bank, EKB.