**Artificial Intelligence and Its Applications**

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**Abstract**

The term artificial can be expressed as something that does not prevail within various natural occurrences of existence on earth, in layman's terms artificial is the opposite natural.

Majority of artificial objects that provide utilities are made in the eyes of naturally occurring phenomenon’s, the most basic example of a light a bulb if broken down to its core purpose can be explained as emission of light where it may not be present naturally.

Artificial plants are made to please or rather elude the eyes of a human, by creating an exact replica of naturally occurring plants but they are made to be artificial for the sole reason of not being able to exist in the natural habitat of human conditioning.

Intelligence in the most basic sense can be defined as the most appropriate application of available information in order to get around or tackle any situation. Self awareness of available knowledge also falls under intelligence in the forms of realization.

**-** "together" in the context you mentioned could refer to the ways in which technology has made it easier for people to come together, share information, engage in joint activities, and collaborate on a global scale. It has transformed the way we connect and work, breaking down barriers and allowing us to be "together" in virtual spaces as well as physical ones.

Artificial intelligence is created to serve a purpose based on process that may occur naturally and those purposes whose needs extend beyond the availability of time; this creates a need for replicating natural process to fulfill these utilities provided through natural processes.

**Keywords:**

Implementation/Design, Observation/findings, Examples of AI used in various projects, Observation/findings.

**Implementation/Design**

Artificial intelligence can be utilized to suit any situation or to sort any problem that may arise depending upon the implemented AI's purpose of creation.

AI can be designed to perform tasks ranging from playing music after announcing the tracks name to performing tasks like driving you home without having you to touch the steering.

This module is designed for meeting increasing expectations of human beings. The need for AI arose when people realized the things that need to be done on a large scale with maximum efficiency. The implementation of AI in the past half decade has increased at an unpredictable rate which has brought about a drastic change in people’s life. Artificial intelligence is such a concept which is used in the most basic environment (home) as well as in the environment where humans cannot sustain.

Some of the major steps of implementing artificial intelligence are:

1. **Start implementing real intelligence first.**
2. Start an AI roadmap for the project to be used in.
3. Try to build an AI software from an open source.
4. Take help of an AI expert for reconciliation of the working of the software.

**Examples of AI used in various projects:**

**1. Tesla Self-driving cars-**

Tesla has created the physical embodiment of cruise control or the autopilot mode. Once seen as means to get your virtual character in video games from one destination to another without the player having to drive has now turned to reality through utilization of technology.

he concept you are describing is commonly referred to as an "Advanced Driver-Assistance System" (ADAS) with a wide range of features designed to enhance vehicle safety and convenience.

These vehicles utilizing the assisted driving aspect include 2 AI chipsets, an extra one for safety. Tesla for know to use Nvidia's AI chipsets , Nvidia being a huge gaming tycoon ,however the 2 chipsets being utilized in the upcoming vehicles is said to be 21 times fast than the older NVidia chipsets.

2. **Siri**

Siri is indeed a voice-activated digital personal assistant developed by Apple. It uses natural language processing and machine learning technology to understand and respond to a wide range of user queries and requests. Siri can assist with tasks such as providing information, setting reminders, sending messages, and performing various other functions on Apple devices.

It's important to note that Siri is not a true AI in the sense of full artificial general intelligence (AGI), which would possess human-like understanding and general problem-solving capabilities. Instead, Siri is an example of narrow or weak AI, designed for specific tasks and applications. It continues to improve and become more proficient at understanding and responding to user input over time through continuous advancements in machine learning and natural language understanding.

The use of AI and machine learning in digital personal assistants like Siri has been a significant development in making technology more user-friendly and accessible to a broad range of people. It's a part of the broader trend of integrating AI into everyday technology to enhance user experiences and convenience.

Siri could be the definition of the term 'virtual acquaintance', artificial of course it can tell you how long you kept your bread slices in the toaster, but it can also perform heavy equations if given the input.

**3.FEAR(2007)**

In Halo, enemies would shriek the word “grenade” to one another before tossing in an explosive from behind cover, while the smaller, grunt-type foes would instruct their squads to flee when you took out the larger elite soldiers. In F.E.A.R., enemies would verbalize the path planning algorithms that controlled their behavior, but the developers dressed it up as an element of realism. Soldiers would shout to a fellow enemy to tell them when to flank, while others would call for backup if you were especially proficient at taking them down.

when I played FEAR for the first time I realized that it wasn't the AI's that I could see in the form of NPCs(non-playable characters) that added to the horror and the tension of the game but in fact the AIs that I couldn't see, the ones that were programmed to hide in the shadows and attack the user at his most vulnerable.

for a game that came out in 2007 it is quiet underrated in its accomplishment of creating an environment which caused the player to jump up even though he knew he had a bunch of weapons at his disposal.

4. **Rockstar games** and how it uses its artificial intelligence to make interactive encounters.

The concept of emergent gameplay is indeed a fascinating and innovative approach to game design. Emergent gameplay refers to the idea that complex systems within a game can interact in unforeseen ways, leading to unique and unexpected player experiences. This approach has become increasingly popular in modern game design, and it often relies on intricate simulations and interactivity.

Through observation in another game that Rockstar is known for in the present is GTA 5 which also includes AI interaction in forms you would never expect because I sure wasn't expecting anything. the female drivers who are NPCs have a rather erratic driving sense in the game, for example if my character gets run over by a female driver, the NPC would just drive away after running you over unlike all other NPCs that would normally stop after the same occurs. Whether this AI behavior was designed on purpose or if its a random occurrence is a a complete mystery however it just adds to the detailsput into the game.

**5.Eliza 1966**

ELIZA utilized basic natural language processing techniques to engage in text-based conversations with users. While ELIZA's conversations were limited and scripted, it represented an early attempt to make human-computer interactions more natural and accessible by using conversational language. ELIZA is most famous for simulating a Rogerian psychotherapist, allowing users to engage in therapy-like conversations.

Going back to the roots of how AI was developed in a time when technology felt limited the creating of Eliza was a achievement that paved the way for IBM to create its own protocols in translation of one language to another through the use of similar or so called BOT AI's.

**6.Sophia(hanson robotics**)

The most recent and one of the most famous AIs in the world would be Sophia a humanoid that could literally have a conversation with you. the purpose of Hanson robotics with Sophia is to create a robot which is essentially a human which brings me to a point of artificial replicating naturally occurring process even the existence of human beings itself.

Sophia does have cameras and computer algorithms that enable her to process visual information. These cameras are placed within her eyes, and she uses them to track faces, make eye contact, and recognize individuals. This allows her to engage in more human-like interactions

Sophia has a natural language processing subsystem that allows her to process speech and have conversations with people. She can respond to questions and engage in dialogues using her pre-programmed responses and AI-driven language processing.

however in interviews with Sophia one can only say that the BOT isn't fully aware of its existence maybe just partially or rather its creators might have put a cap on its self awareness protocols or any other equations that causes it to understand fully about everything.

the agenda here is to understand how we has human beings are capable enough to essentially create a life form in the name of being artificial, but humans try to keep making robots and AI look more human, act more human even though the possibility and basic purpose indicates us to evolve and be better and perform activities that we could never do until now, we can only look forward to a future where technology could be embedded within the biology of the homo sapiens in the forms of AIs in our brains to reveal the full potential of ourselves to us.

**Observation/findings**

## **1. AI Could Help Cut Costs**

## Cost Reduction with AI: Technology for addressing cyber exploits can save a substantial amount. Specifically, the estimated average cost for companies without AI is more than Rs. 50,000 per month, while those using AI spend an average of Rs. 20,000 on the same threats. This results in a potential cost savings of Rs. 30,000 per month.

**Impact of AI on Operating Costs:** The utilization of AI technology can lead to cost savings by enhancing cybersecurity measures, automating threat detection and response, and improving overall security posture. This is a key driver for organizations to invest in AI-based solutions, as it helps protect their data and systems while reducing operational expenses.

**Example from Nasik (BOSCH):** In Nasik, particularly mentioning BOSCH, adopting new technologies to reduce the cost of maintaining outdated technology is in line with the global trend of organizations embracing technology, including AI, to optimize their operations. Upgrading technology can improve efficiency, reduce downtime, and enhance security, which can translate into cost savings and improved competitiveness.

## **2. Minimizing Data Breaches:** The use of AI can significantly reduce the likelihood of data breaches affecting a large number of sensitive records. Respondents noted that when AI technologies were leveraged, the likelihood of such breaches decreased substantially.

## **3. Increased AI Investment:** Organizations are planning to increase their investment in AI. This indicates a growing recognition of the value that AI can bring to cybersecurity as the technology continues to mature.

## **4. Improved Productivity:** AI-based security technologies are seen as capable of improving the productivity of IT security personnel. This is essential for handling the growing volume of security threats.

## **5. Deeper Security:** AI-based technologies are perceived as providing deeper security compared to relying solely on human efforts. However, it may not necessarily reduce the workload of IT security personnel**.**

## **6. Support for Identification and Authentication:** AI plays a crucial role in supporting technologies related to user identification and authentication, as well as providing security intelligence about network traffic and entities.

## **7. Speed:** The ability of AI to increase the speed of threat analysis is seen as one of its most significant advantages. It also accelerates the containment of infected endpoints and devices.

## **8. Human Supervision:** While AI can handle a significant portion of alerts, human supervision is still required. Respondents estimated that a substantial percentage of alerts and previously undetectable exploits could be managed by AI.9. AI Helps Identify

## **9.Application Security Vulnerabilities:** Identifying Application Security Vulnerabilities: AI is recognized for its ability to identify application security vulnerabilities and enhance the effectiveness of security activities related to applications.

1. **Time Savings**: AI significantly reduces investigation and detection time for application vulnerabilities, resulting in substantial time and labor savings for organizations.

These findings collectively demonstrate the potential of AI to enhance cybersecurity, reduce risks, improve efficiency, and support security professionals in their efforts. AI is increasingly becoming an essential tool in the field of cybersecurity, helping organizations stay ahead of evolving threats.

**Conclusion**

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| AI and technology continue to be a source of fascination and surprise due to their constant evolution, introducing new ideas, innovations, and products that capture our interest. While AI has not yet reached the level of intelligent robots as depicted in films, significant efforts are being made to compete in the market and develop advanced technology, including robotics.  Ethical considerations are increasingly important as AI technologies become more powerful and integrated into various aspects of our lives. |

A reference to the "three rules of robotics" likely alludes to Isaac Asimov's Three Laws of Robotics, which have been foundational in science fiction and ethical discussions related to AI and robotics.

AI research is an ongoing endeavor, and the field is focused on developing computational models of intelligence, including the challenge of representing the complexity of human thought.

Overall, the continuous advancement and potential of AI, as well as the questions and challenges that researchers and developers in the field continue to grapple with. AI is indeed a dynamic and evolving field with broad implications for various aspects of our society and daily lives.

**Bibliography**

page 2-<https://www.cnet.com/news/meet-tesla-self-driving-car-computer-and-its-two-ai-brains/>

page-2-<https://www.theverge.com/2019/3/6/18222203/video-game-ai-future-procedural-generation-deep-learning>

page-3-<https://www.forbes.com/sites/bernardmarr/2018/12/31/the-most-amazing-artificial-intelligence-milestones-so-far/#7ff724527753>

page-3-<https://www.forbes.com/sites/robertadams/2017/01/10/10-powerful-examples-of-artificial-intelligence-in-use-today/#4f472c9d420d>

page-4-<https://www.hansonrobotics.com/sophia/>

page-6<https://becominghuman.ai/50-killer-ai-projects-f1b6966c7dbc>

Artificial Intelligence: A Modern Approach

Textbook by Peter Norvig and Stuart J. Russell

How to Create a Mind: The Secret of Human Thought Revealed

Book by Ray Kurzweil

Structure and Interpretation of Computer Programs

Textbook by Gerald Jay Sussman and Hal Abelson

**We also visited a company in Nasik for a research on artificial intelligence for better information and understanding.**