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ARTIFICIAL INTELLIGENCE AND ITS APPLICATIONS

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 can be defined as a derived natural process that can be made easier with the help of technology existing in today's time.

Artificial intelligence is created to serve a purpose based on a 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.

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I. 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 AI software from an open source.
4. Take help of an AI expert for reconciliation of the working of the software.

II. 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.

   The concept is termed as an advanced driver-assistance system feature that has lane centering, adaptive cruise control, self-parking, the ability to automatically change lanes, and the ability to summon the car to and from a garage or parking spot.

   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**: Everyone is familiar with Apple's personal assistant, Siri. She's the friendly voice-activated computer that we interact with on a daily basis. She helps us find information, gives us directions, add events to our calendars, helps us send messages and so on. Siri is a pseudo-intelligent digital personal assistant. She uses machine-learning technology to get smarter and better able to predict and understand our natural-language questions and requests.- According to Forbes

   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.

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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. Today, the most boundary-pushing game design doesn’t revolve around using modern AI, but rather creating complex systems that result in unexpected consequences when those systems collide, or what designers have come to call emergent gameplay. Take, for instance, Rockstar’s hyper-realistic Western game *Red Dead Redemption 2*, which lets players interact with non-playable characters in myriad, complex ways that elicit different reactions depending on everything from the hat you’re wearing to whether your clothes have blood stains on them.

   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 it’s a random occurrence is a a complete mystery however it just adds to the detailsput into the game.

5. **Eliza 1966:** ELIZA, developed at MIT by Joseph Weizenbaum, was perhaps the world’s first chatbot – and a direct ancestor of the likes of Alexa and Siri. ELIZA represented an early implementation of natural language processing, which aims to teach computers to communicate with us in human language, rather than to require us to program them in computer code, or interact through a user interface. ELIZA couldn’t talk like Alexa – she communicated through text – and she wasn’t capable of learning from her conversations with humans. Nevertheless, she paved the way for later efforts to break down the communication barrier between people and machines.

   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.

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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.

   Cameras within Sophia's eyes combined with computer algorithms allow it to see. It can follow faces, sustain eye contact, and recognize individuals. It is able to process speech and have conversations using a natural language subsystem. Around January 2018 Sophia was upgraded with functional legs and the ability to walk.

   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.

III. OBSERVATION/FINDINGS

1. **AI Could Help Cut Costs:** For organizations across a wide variety of industries and geographies, the estimated average cost of addressing potential cyber exploits without AI at a local level is more thanRs.50,000 per month. Companies who are using AI, by contrast, spent an average of Rs.20, 000 on the same threats. Thus, a company can potentially save an average of Rs.30, 000 in operating costs by utilizing AI technology. For e.g according to the research program made by me, industries in Nasik (especially BOSCH Company) have adopted new technologies in the past few months, this according to the companies review has helped the cut their cost of maintaining the outdated technology which they were using earlier.

2. **AI May Minimize Data Breaches:** When asked about the estimated likelihood of a data breach affecting more than 10,000 sensitive customer or consumer records at their organizations, 40 percent of respondents estimated that the probability was greater than 20 percent if they didn’t leverage AI technologies. However, a mere 2 percent of respondents estimated that the likelihood was greater than 20 percent when AI technologies were leveraged.

3. **Organizations Plan to Increase AI Investment:** Organizations expect to increase their investment in AI. As AI technology matures, investments will grow, according to 60 to 70 percent of respondents.

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4. **AI May Improve Productivity:** Sixty percent of respondents were positive about the ability of AI-based security technologies to improve the productivity of their IT security personnel.

5. **AI-Based Technologies Provide Deeper Security:** Sixty percent of respondents stated that AI-based technologies provided deeper security than what humans alone could offer. However, only 34 percent of respondents said that the use of AI would decrease the workload of their IT security personnel.

6. **AI Supports Identification and Authentication Technologies:** AI provided the most support for technologies that identified and authenticated users. Sixty-five percent of respondents stated that AI supported technologies that identified and authenticated their users, and 54 percent of respondents noted that AI was utilized with technologies that provided security intelligence about network traffic and entities.

7. **Speed Is the Most Significant Benefit of AI:** Sixty-nine percent of respondents stated that the most significant benefit of AI was the ability to increase their speed in analyzing threats. This was followed by 64 percent of respondents who said the most significant advantage was the acceleration in the containment of infected endpoints and devices and hosts.

8. **Human Supervision Is Still Required:** Human supervision is still required when dealing with alerts. Respondents estimated that an average of 45 percent of alerts could be handled by AI without human supervision. On average, 41 percent of previously "undetectable" zero-day exploits can be detected because of AI.

9. **AI Helps Identify Application Security Vulnerabilities:** Sixty percent of respondents stated that AI identified their application security vulnerabilities — and a firm majority (59 percent) of respondents noted that AI increased the effectiveness of their organizations' application security activities.

10. **AI Saves Investigation and Detection Time:** Respondents estimated that investigating and detecting application vulnerabilities took, on average, 195.88 labor hours per week when not facilitated by AI, but took, on average, 70.48 labor hours per week when facilitated by AI — saving organizations 125.40 labor hours per week on average.

If we further estimate that security analysts work an average of 40 hours per week, that's an estimated saving of more than three full-time equivalents (FTEs) per week.

IV. CONCLUSION

Artificial Intelligence and the technology are one side of the life that always interest and surprise us with the new ideas, topics, innovations, products …etc. AI is still not implemented as the films representing it(i.e. intelligent robots), however there are many important tries to reach the level and to compete in market, like sometimes the robots that they show in TV. Nevertheless, the hidden projects and the development in industrial companies.

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At the end, we've been in this research through the AI definitions, brief history, and applications of AI in public, applications of AI in military, ethics of AI, and the three rules of robotics. This is not the end of AI, there is more to come from it, who knows what the AI can do for us in the future, maybe it will be a whole society of robots.

AI is at the center of a new enterprise to build computational models of intelligence. The main assumption is that intelligence (human or otherwise) can be represented in terms of symbol structures and symbolic operations which can be programmed in a digital computer.

There is much debate as to whether such an appropriately programmed computer would *be* a mind, or would merely *simulate* one, but AI researchers need not wait for the conclusion to that debate, or for the hypothetical computer that could model all of human intelligence.

Aspects of intelligent behavior, such as solving problems, making inferences, learning, and understanding language, have already been coded as computer programs, and within very limited domains, such as identifying diseases of soybean plants, AI programs can outperform human experts.

Now the great challenge of AI is to find ways of representing the commonsense knowledge and experience that enable people to carry out everyday activities such as holding a wide-ranging conversation, or finding their way along a busy street. Conventional digital computers may be capable of running such programs, or we may need to develop new machines that can support the complexity of human thought.

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

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