Application of Artificial Intelligence: A Review

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Abstract— *Industry 4.0 is the modern demand and revolution to get more accuracy, desired shape, and quality with a lees manpower in the industry by following advance technology like Artificial Intelligence (AI), Internet of Things (IoT). This rebellion was started from Germany and still continuing to get the modernized application of industry. Artificial Intelligence (Robot) is one of the advance applications in the modern industry. Nowadays, AI is a very popular field of science. Humans are using Artificial Intelligence in places where it is difficult and dangerous for a human to work. On the other hand, some people are trying to make Artificially Intelligent robots, which would be able to think like a human. Trying to replace the need for men, which is very dangerous because this act can result in the extinction of human civilization because Artificial Intelligence already has greater computational ability. This trying to make like a human or trying to imitate human's decision is also not accurate because human do not know how human thoughts work completely. Artificial Intelligence as technology has achieved many unthinkable developments, which is helping the human race to become more prosperous. However, it is affecting the morals and norms of humans also. People are becoming more dependent on AI. This paper aims to study various developments and achievements of Artificial Intelligence and discussed in the view of their positive and negative impacts on our life.*

Keywords— *Artificial Intelligence; Artificial neural network; Personal Computer; Artificial general knowledge.*

I. INTRODUCTION

Artificial Intelligence is an intelligent machine or program, which can take decisions on its own by analyzing the circumstances, without human involvement. Major AI researchers and textbooks define this field as "the study and design of intelligent agents", in which an intelligent agent is a system that perceives its environment and takes actions that maximize its chances of success. John McCarthy, who coined the term in 1955, defines it as "the science and engineering of making intelligent machines" [1].

Artificial Intelligence has been a great tool for solving critical problems and for working in conditions and situations where the work is too dangerous for humans. For example, Repetitive works in many industries are injurious for humans to do with high speed. However, it is needed to be done and done faster to help the company's work. In this kind of conflicting situations, Artificial Intelligence is used [1,2]. Artificially Intelligent Robots can do the same repetitive work at very high speed without any accumulated stress. Similarly, if a human does the same work, then because of the repetitive movements human might become injured for a lifetime. His hands or legs might become paralyzed or his hearing ability might

decrease depending on the nature of work he does [3]. In some cases, the computational capability of Artificial Intelligence is used to aid humanity in various programs and services. Like various programs which run sequences and thus complete a process [4].

There are some effects of using this Artificial Intelligence. Since Artificial Intelligence is making things easier and doing some of our hard works, humans are relying more on Artificial Intelligence. Moreover, because of using Artificial Intelligence more there is less work opportunity for human. Since Artificial Intelligent Robots can do repetitive work with great speed and no fatigue which man cannot do in most cases, so Artificial Intelligence is preferred. Rather, this dependency on Artificial Intelligence is creating some unemployment [5,6].

1.1 Definition

Artificial Intelligent (AI) is a zone of software engineering that manages to enable machines to appear as like as human insight. It can be defined as the intensity of a machine to duplicate the intelligence of human conduct [7].

The expression AI (Artificial intelligence) was started at the 1956 Dartmouth meeting. The most part

acknowledged definition is the Turing test, first proposed in 1950, as the capacity of a machine conveying regular language over a teletype to an individual person to build a trust that it was a human. "AGI" or "Artificial General knowledge" stretches out this plan to expect machines to do everything that humans can do, for example, get pictures, explore a robot, perceive and react properly to outward appearances, recognize music kinds, etc [8].

Artificial Intelligence (AI) is the field inside software engineering that looks to disclose and to copy, through mechanical or computational procedures, a few or all parts of human intelligence. Included among these parts of intelligence is the capacity to connect with nature through tangible methods and the capacity to settle on choices in unanticipated conditions without human intercession [9]. Average regions of research in AI incorporate game playing, characteristic language realization and synthesis, PC vision, critical thinking, learning, and robotics [8, 9].

The above is a general depiction of the field; there is no endless supply of man-made consciousness, basically in light of the fact that there is little understanding regarding what comprises intelligence. Interpretation of being shrewd to differ, yet most can be ordered in one of three different ways. Intelligence can be thought of as a quality, a separately held property that is divisible from every single other property of the human individual [10]. Knowledge is additionally found in the capacities one performs, in activities or the capacity to do certain assignments. At long last, a few scientists consider intelligence to be a quality that must be obtained and showed through association with other intelligent beings. Every one of these understandings of knowledge has been utilized as the premise of a way to deal with creating PC programs with keen attributes.

II. BACKGROUND & IMPORTANCE AI

Artificial Intelligence has been used as a very useful tool in many cases. Starting from heavy industries, computational works, hospitals up to games and toys in every sector Artificial Intelligence has become a part and parcel. Some of the fields which use AI (Artificial Intelligence) are discussed below. Figure 1 shows the various application of AI.

2.1 Industries

In industries, AI agents are used very frequently nowadays. Most of the car manufacturing companies use robots extensively. Robots are used successfully in many situations where it is considered dangerous and degrading for human. Robots are also very expert at repetitive works

in which sudden lapse of concentration can cause damage and/or accidents [11].
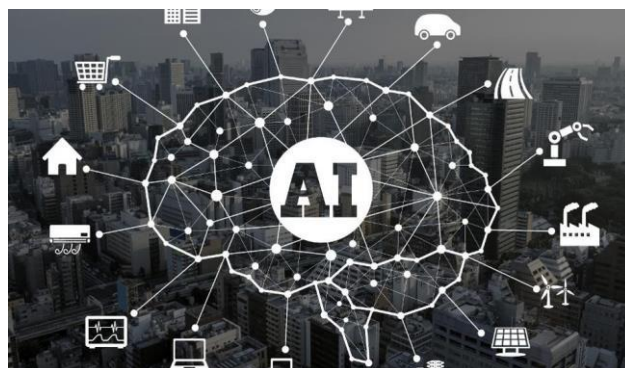

Fig. 1: Different applications of artificial intelligence [11]

2.2 Transportation

Fuzzy Logic controllers have been produced for programmed gearboxes in cars. For instance, the 2006 Audi TT, VW Toureg, and VW Caravell include the DSP transmission which uses Fuzzy Logic. Various Škoda variations (Škoda Fabia) additionally right now incorporate a Fuzzy Logic-based controller. Additionally, Google Car that is driven consequently with no driver is a miracle of AI use as of late [12, 13].

2.3 Finance

The use of AI in banking can be followed back to 1987 when the Security Pacific National Bank in USA set-up a Fraud Prevention Task power to counter the unapproved utilization of debit cards. Applications like Kasisito and Money stream are utilizing AI in budgetary administrations Banks utilize artificial intelligence frameworks to sort out tasks, put resources into stocks, and oversea properties. In August 2001, robots beat people in simulated money related exchanging competition [14].

Budgetary establishments have since quite a while ago utilized counterfeit neural system frameworks to identify charges or claims outside of the standard, hailing these for human inspection.

2.4 Hospital and Medicine

An MC can use the AI system to sort out bed plans, make a staff turn, and give therapeutic data and other significant undertakings. Artificial neural systems are utilized as clinical choice emotionally supportive networks for therapeutic analysis, for example, in Concept Processing technology in EMR programming software [15].

- Different shops in medication that can possibly be performed by AI include:

- Computer-helped elucidation of restorative pictures. Such frameworks help check computerized pictures, for example from processed tomography, for regular appearances and to feature prominent segments, for example, potential infections. A normal application is the identification of a tumor.

- Heart sound test

- Watson's task in where the utilization of AI in this field is Q/A program that proposes for specialists of cancer patients.

2.5 Online and Telephone Customer Service:

Artificial Network is actuated in computerized online associates that can be viewed as symbols on web pages. It can profit for endeavors to diminish their activity and preparing cost. A significant fundamental innovation in such frameworks is natural language preparation [16].

Comparable procedures might be utilized in answering mail of call focuses. For example, speech acknowledgment programming to enable PCs to deal with the first degree of client assistance, content mining and characteristic language preparing to permit better client taking care of, specialist preparing via programmed mining of best practices from past connections, bolster computerization and numerous different advancements to improve operator profitability and consumer loyalty.

Numerous media communications organizations utilize experimental inquiry in the administration of their workforces, for example, BT Group has sent heuristic pursuit in a booking application that gives the work routines of 20,000 engineers [17].

2.6 Music

The development of music has consistently been influenced by technology. With AI, researchers are attempting to cause the PC to copy the exercises of the adroit musician. Structure, execution, music theory, sound handling are a portion of the significant territories on which research in Music and Artificial Intelligence are centering. Among these endeavors, Melomics seems to go ahead by powering PC authors that figure out how to make the manner in which people do [18].

2.7 Aeronautics

The Air Operations Division (AOD) utilizes AI for the standard-based master frameworks. The AOD has a use for artificial intelligence for surrogate administrators for battle and preparing the system test, mission guides, emotionally supportive networks for strategic basic leadership, and post

handling of the test system information into symbolic gist's [19].

III. MERITS OF USING AI

Using Artificial Intelligence certainly has many merits. They are not corrupted like humans. They are not biased in their decisions. They are good at repetitive work. They are not lazy and certainly do not look for time to rest. They can be controlled better than humans in most cases. This acclaim for AI continues endlessly. An idealistic perspective on utilizing robotized vehicles can be considered. The positive effect of having intelligent vehicles would be massive. Consider the potential biological investment funds of utilizing interstates a great deal more productively as opposed to clearing over farmland. There is the wellbeing part of lessening the yearly road accident on the streets: it is assessed that 1.2 million individuals are killed, and in excess of 50 million are injured due to road accidents every year around the world [20]. Other than the subsequent decrease in accidents, there could be up to multiple times the traffic throughput. Old and disabled people would have the option to get around without anyone else. Individuals could dispatch their vehicles to the parking center self-sufficiently and afterward review them later.
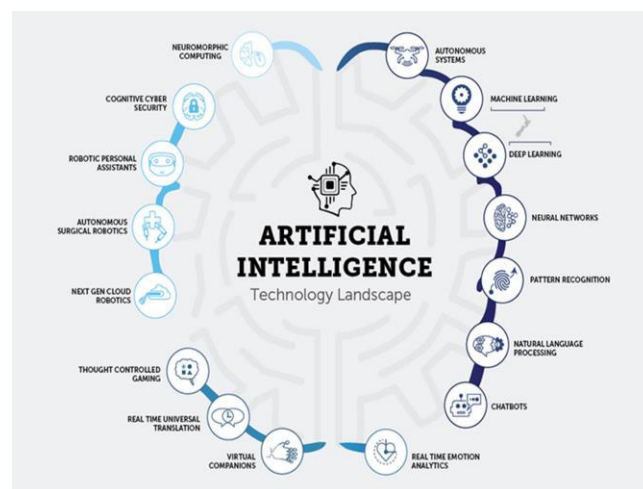

Fig. 2: Wide coverage of AI [21]

There would, in fact, be automated stockrooms for self-ruling cars as in lieu of utilizing surface land for stopping. Genuinely, the positive allegations of achievement around there are generally promising/ encouraging. That there are two fundamentally unique, yet not conflicting, situations for the results of the improvement of self-ruling vehicles recommend the requirement for insightful moral thought of their utilization [21]. The stuff of science fiction is quickly getting to be science actuality. Figure 2 shows the wide coverage of Artificial Intelligence. Computer-based

intelligence is currently developed, both as a science and, in its innovations and applications, as a building discipline.

Numerous open doors exist for AI to affect positively our planet's condition. Artificial intelligence scientists and improvement architects have an exceptional point of view and the abilities required to contribute essentially tending to worries of an Earth-wide temperature boost, neediness, nourishment creation, arms control, wellbeing, instruction, the maturing population, and statistic issues [22]. We could, as a straightforward model, improve access to devices for finding out about AI so individuals could be engaged to give AI methods a shot their very own issues, instead of depending on specialists to assemble hazy frameworks for them. Games and challenges dependent on AI frameworks can be exceptionally convincing receiving the hang of, educating, and explore situations, as appeared by the accomplishment of the Robo Cup for robot soccer [23]. We have just viewed as a portion of the ecological effect of intelligent cars and smart traffic control. Work on combinatorial closeouts effectively applied to range distribution and coordinations, and could further be applied to providing carbon offsets and to enhancing energy market interest. There could be more work on smart energy controllers utilizing conveyed sensors and actuators that would improve energy use in structures [24]. We could utilize qualitative demonstrating procedures for atmosphere situation displaying. The thoughts behind imperative based frameworks can be applied to break down reasonable frameworks. A framework is sustainable on the balance of chance that it is in a stable with its condition: fulfilling present moment and long haul requirements on the assets it devours and the output it produces. Figure 3 shows the advantages and disadvantages of AI.
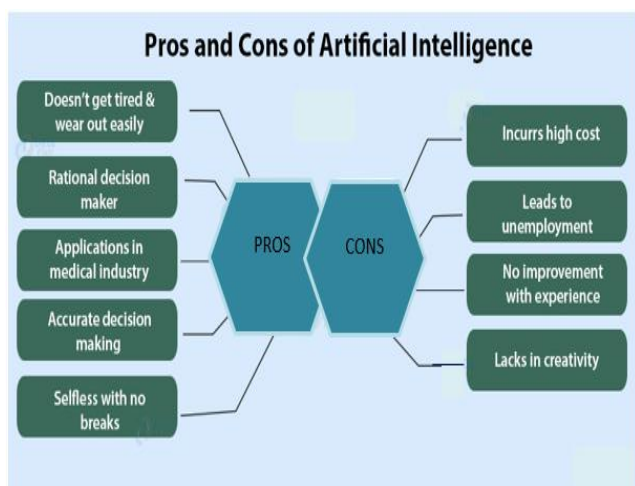

Fig. 3: Pros and Cons of AI [20]

IV. DEMERITS OF AI ON SOCIETY AND MANKIND

Artificial Intelligence has some demerits as well. They are replacing humans in many cases. Moreover, AI robots will not feel the empathy humans are able to feel. This emotion of humans can make them a great creature. In addition, in most cases, artificial intelligence can be hacked if there is a dedicated expert. This is a major warning because if the AI robot is hacked and turned against its purpose it would be a nightmare. Joseph Weizenbaum proposed that AI applications cannot understand, by definition, effectively reproduce certified human compassion and that the utilization of AI innovation in fields [25]. Weizenbaum was also reported that AI specialists (and a few rationalists) were eager to see the human personality as just a PC program (a position presently known as computationalism). He also proposes that AI research depreciates human life [25]. Martin Ford reported that Automation, Accelerating Technology and the Economy of the Future, and others contend that particular artificial intelligence applications, robotics and different types of automation will eventually bring significant changes in job life that means huge unemployment as machines coordinate and surpass the ability of laborers to perform daily schedule and boring employments [26]. Portage predicts that numerous information-based occupations and specifically entry-level employments—will be progressively vulnerable to robotization by means of expert system, AI and other AI-improved applications. Artificial intelligence-based applications may be utilized to enhance the capacities of low-wage seaward laborers, making it progressively practical to redistribute information work [26].

It was observed that a look at the eventual fate of AI in Google's self-driving vehicles. Presently imagine that some evil wrongdoing syndicate was to take such a vehicle, tie a weapon to the top, and reprogram it to shoot people. That is an AI weapon [27].

The capability of these weapons has not escaped from the minds of governments. This year, the US Navy's declaration of designs to create self-governing automaton weapons, just as the declaration of both the South Korean Super aegis II programmed turret and the Russian Platform-M programmed battle machine [28].

The governments are not the main players making AI weapons. Think about a GoPro-bearing quadcopter drone, the sort of thing anybody can purchase. Presently envision a straightforward bit of programming that enables it to fly consequently. The equivalent terrible wrongdoing syndicate that can weaponize a driverless vehicle is simply

inches from connecting a firearm and programming it to murder individuals in a packed open spot [29].

This is the impending threat with AI weapons: They are effectively changed over into aimless passing machines, unmistakably more hazardous than similar weapons with a human in charge.

In any case, Sharkey [30] mentioned some of the threats of depending on robotic assistance as allies for the Elder and the young. Same as with autonomous vehicles also conveying the threat and dangerous action.

We cannot yet depend on robots (AI) to make the best choice. They are not completely dependable and reliable, given the manner in which they are manufactured at this point. Anyway, would they be able to make the best decision? Will they make the best choice? What is the proper thing? In our aggregate thinking, the fear exists that in the end robots may turn out to be totally self-ruling, with choice, knowledge, and awareness; they may rebel us as Frankenstein-like beasts [31].

Vernor Vinge has reported that a time may come when a few PCs are more intelligent than men [25]. He calls this "the Singularity." He recommends that it might be to some degree or potentially exceptionally risky for people. This is talked about by a way of thinking called Singularitarianism. The Machine Intelligence Research Institute has recommended a need to assemble "Friendly AI", implying that the advances, which areas of now happening with AI. It can incorporate a push to make AI naturally well-disposed and humane [32].

"My take is that A.I. is dominating," said Sebastian Thrun, a notable roboticist who drove the advancement of Google's self-driving vehicle. "A couple of people may, in any case, be 'in control,' however less and less so." [32]

"Loss of control of A.I. frameworks has turned into a major concern," he said. "It panics individuals." Rather than reject these tragic cases, he stated, researchers rather should screen and constantly assess the innovations.

V. CONCLUSION

Artificial Intelligence is the latest wonder in science. Like most other wonders of science, it also has many merits and demerits. However, we cannot throw it away just because it seems dangerous. We have to understand it more. We have to become better at overcoming the demerits. We should use AI in order to solve our problems. Since it is a very sensitive area, we cannot afford to just play with it. We should not just try to make a Robot, which will behave like humans just out of curiosity. Because it would not be, as human. It would be super intelligent

because of the superior computational ability compared to a human. This is why playing around just because of self-interest should not be the way of using Artificial Intelligence. Artificial Intelligence nowadays is used in many research because of interest. Not because they are needed but because they are wanted. How can a human create something like a human when they just do not really fully understand how everything inside a human body and mind works! This intention of becoming Gods actually poses a real threat to Humanity. The intention of using Artificial intelligence should be the greater good of humanity.

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