Artificial Intelligence – New Era

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Abstract— After conducting a systemic research on Artificial Intelligence, we are safe to conclude that the world is about to experience the splash of the greatest technology made so far. We are about to face perhaps the biggest technological revolution. Artificial Intelligence is the zenith of the currently prospering technological systems, which in the near future shall revolutionize the existing portal of information processes and the way humans perceive automation. This research serves as a befitting response to the question -How the world is running on AI behind the curtains and further provides an insight to the evolution of AI over the period. This paper gives a deep sense of understanding of various applications and implementations of Artificial Intelligence in different fields and the manner in which the aforementioned evolution shall root advancement into every aspect of life. It also demonstrates the negative aspects of the implementation by providing legitimate evidence from prominent scientists and acclaimed people in this arena of science. In a nutshell, this paper will illustrate the different possibilities of aspects of the development of Artificial Intelligence in the coming future.

Index Terms— Cybernetics, Humanoid, Living Forever, Wired.

I. INTRODUCTION

The name Artificial Intelligence coined by John McCarthy is an experimental branch of computer science that pursues its goal of creating an intelligent machine that can perform diverse tasks by using its intelligence. While employing the power of the computer systems, the curiosity of human, lead him to wonder, *"Can a machine think and behave like we humans do?"* Thus, the development of AI started with the intention of creating similar intelligence in machines that we find and regard high in humans.

Father of Artificial Intelligence, John McCarthy, says, it is *"The science and engineering of making intelligent machines, especially intelligent computer programs." [1]*

Human's ability to construct new ideas follows a logarithmic path and is rapidly approaching an asymptote or Technological singularity when this technological singularity is reached it is hypothesized that the man's greatest achievement, an artificial sapient being, will supersede

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human brain capacity.

Artificial Intelligence is enabling the machine to perform its

work individually. An intelligent machine does not need instructions and guidelines; it performs work on their own using its intellect.

Currently, we are working with weak AI's i.e. AI's which just performs limited amount of work. Weak AI's or Narrow AI's (also known as Artificial Narrow Intelligence or ANI) are tasks specific, their ability to perform work is limited, and it does not possess any cognizance, will and mind. It works just as an agent for a particular task. Whereas an AI with consciousness and will is considered as a strong, intelligent machine (known as Artificial General Intelligence or AGI) capable of performing diverse tasks, taking intelligent decisions, communicating, explaining different possibilities and a lot more. A fully functioning AI is yet to accomplish, and the efforts to achieve so has increased rapidly over the years.

II. ARTIFICIAL INTELLIGENCE – A RATIONAL APPROACH

Indeed, AI can be proved to be the man's greatest creation. Its implementation into any organization can flourish it miraculously. Complexities of life can be resolved within the blink of the eye. AI is stretching its uses in every field, be it complicated processing task, managing big data, evaluating and solving complex algorithms and a lot more. A machine which is far beyond human follies and is perfect committing no mistake does its work flawlessly and efficiently. Science is all about unravelling the mysteries behind the universe. Starting from its origin, science consistently tries to find the hidden parameters of the universe and formulate them into the use of mankind. Attainment of a perfect machine having knowledge of all such parameters could evolve human kind like never before. We will know the deepest of the knowledge about anything. Many algorithms, theorems, discoveries, etc. are yet to be deciphered. Attaining perfection using machine we can become the master of this universe. Maybe it will enable us to know how life is created in any species, what is the origin of life, formulation of DNA, its replication, etc. Intelligent Machines could be the solution to everything. Our human brain is not capable of performing numerous tasks at one time. We get tired, bored, frustrated, emotional which is our limitation, but machines, on the other hand, is free from all such human constraints. [2]

III. EVOLUTION OF AI

GAME CHANGERS WORKING BEHIND THE AI CURTAIN:

Google - Alphabet, Deep Mind
Google reorganized all its resources in October 2015, when Alphabet became its parent company. Projects of Google search engine and Android were spun out in two separate Alphabet companies with their own CEOs. All of these moon shot projects cover everything from Smart Class to robots that can work alongside with humans.

What Google hope to accomplish:

1. **Delivery drones** - Delivery drones in Associations with Amazon powered by Alphabet to replace mailman with flying drones, which got patented in October 2014.

2. **Smart Contact Lenses** –It is solar powered contact lens which can collect biological data like body temperature and blood sugar level and will display it on user's smart watch. The project is under Google life sciences (now Verily).

3. **Project Loon**– Internet-beaming hot air balloons are Alphabet's desire to cover two-third of the world's population and provide them with the internet in rural areas and places which are devoid of internet access.

4. **Waymo** – It is an automated Driverless car designed by Google Alphabet. Currently, it is under development. Very smart AI drives this car, and it uses very powerful Laser and GPS system to navigate its path automatically.

5. **AlphaGo** – AlphaGo is a project under DeepMind, In October 2015, AI defeated the famous Go player Fan Hui. It is the first time an AI beats a champion in GO game. Till now all the AIs were only known to have played GO at "amateur" level. [3]

Microsoft – Equivio
Microsoft is continuously making efforts to tackle down world's biggest giant Tech Company 'Google.'
It is designing an AI for Cognitive thinking, Companion, and cloud computing on big data.
Microsoft's CEO Mr. Satya Nadella says:
"The fundamental need of every person is to be able to use their time more effectively, not to say, 'let us replace you,'"
Later he surprises the audience by a wondering statement.
"This year and the next will be the key to democratizing AI. The most exciting thing to me is not just our own promise of AI as exhibited by these products, but to take that capability and put it in the hands of every developer and every organization." [4]

Skype – Instant Translation
Skype is about to provide real-time voice translations in six languages. This translation application will recognize speech and translate its text as users speak. This will enable the world to connect more efficiently and can give rise to globalization more prominently.

Apple – Emotient
Officials say that they are working on their most popular virtual assistance 'Siri.'

Siri is an assistant feature available in iOS to provide assistance to users by using voice commands, speech recognition, face detections and much more. While Emotient is emotion recognition program that reads the faces and predicts the results of the observations.

Facebook – Deep learning
Facebook is developing features to help a blind person to enjoy Facebook app experience to visualize photos by describing them using AI. E.g: a woman with a man and three children in an orchid garden.
Facebook's CEO Mark Zuckerberg has developed an AI companion for his family, and he named it to worlds famous fictitious Marvel character – Jarvis, who can talk to people and can assist them and a lot.

Amazon – Amazon Eco
World's popular online shopping giant Amazon started cloud platform for developers to work on cloud computing, Big Data, and Machine learning platform. It provides the ability to predict and find patterns using data. Amazon has designed an intelligence speaker Amazon Eco which uses AI Alexa. As of now, it offers various features to end users such as weather report, traffic information, Entertainment, Q&A and much more.

IBM –Cognea
Intel- Intelisys, Saffron
Nokia – Medio
Twitter – Tell Apart
Uber – Geometric Intelligence
Yahoo! – IQ Engines

Moreover, the list goes on.

IV. THE PROBLEM WHICH MAY ARISE DUE TO THE IMPLEMENTATION OF AI

1. **Unemployment**: An intelligent machine is capable of performing a work more efficiently than a human. The big organizations will implement the use of AI and will do its work. This could be the major reason for unemployment. For instance, IBM - Watson Explorer (The Company sacked down 32 employees after the introduction of artificial Intelligence in their   firm). Watson Explorer is a cognitive technology that can think like a human to analyze and interpret data, including unstructured text and multimedia. According to a 2015 report by the Nomura Research Institute, nearly half of all jobs in Japan could be performed by robots by 2035.[5]

2. **Wars and Arms Race:** The use of intelligent machines in wars and mass attacks could spell the end of the human race in no time. The bombs dropped on Hiroshima is nowhere compared to an army of Artificial Bots who are raised to destroy everything that comes in its way. Targeted missiles,

bull's eye shots, sleeper cells, etc. will rise tremendously if AI gets into wrong hands. The attacks on World Trade Center is still remembered, but such attacks are possible every second if we happen to design AI in a destructive way. Many terrorist organizations can misuse it and erode the humanity within the time you read this paper.

3. **Security Issues:** It is correct that we trust machines more than humans, the reason is that humans are full of follies, we can't depend on them. There is a possibility that through a different better AI's (much advanced) one can hack into another AI and breach the security. So it can be a major matter of concern.

4. **Potential threat to Humans:** Why will a super intelligent machine will work under dumb people? Why will it follow our instructions? The clash of ideas and objective between the machines and humans could lead to a disagreement at some point of time. The conflict can give rise to war; it's just as we humans do to decide our supremacy over another and it is beyond a shadow of any doubt that machine will eventually conquer us as they are good in everything. That is the main reason why Stephen Hawking's doubts the evolution of artificial sapient beings.

The concerns regarding the emerging science of AI is genuine. CEO of Tesla Motors and SpaceX Elon Musk also showed his unwillingness into the development of Artificial Intelligence. However, we cannot stop researching; the willingness to conquer more and explore the deepest hidden parameters of the universe is our goal. Therefore, the quest to achieve more will continue at increasing pace.

Probable Solutions to the above Problem:

The development of AI is no less than handling atomic bomb or a nuclear power grid. Therefore, a protocol becomes a necessity to restrict the implementation of such super intelligent machines everywhere. The considerable increasing rate of making machines everywhere can put thousands of workers out of their job. It happened almost everywhere where AI is implemented. The research in AI should not be a hidden procedure. The government should be intimated at each developing step. Any suspicious activity should be looked after. Formulation of new laws should be enunciated. Laying the foundation of future is a matter of great responsibility. Therefore no such research should be made that will harm the present. This may include experimenting on humans for implementation, modifying DNAs for experimenting, etc.

V. BIOMEDICAL APPLICATIONS

In the field of zoology, as well as botany, AI will be a big player, and it can change the shape of the world. Thinking of people, behavior, knowledge and the science even it can transform humans to superhuman. Here are some proposed as well as implemented ideas that can be made possible in coming years.

1. Artificial Drone Bee:
Professor Einstein, once calculated that *"if all bees disappeared off the earth, four years later all humans would also have disappeared." -Abeilles et Fleurs, June 1965. [6]*
Artificial bee is a solar powered tiny worker bee that is programmed to collect the sugary syrup (Nectar) from flowers. Thus Honey can be synthesized easily. While collecting the nectar, they will be pollinating the flowers so fertilization can be made easy. Using this technique one can increase the population of the endangered plant species. The introduced AI will learn by automatically on how to make the process efficient? Which plants they should pollinate more and which plants are more suitable for honey composition.

2. DNA Decoder:
An AI can handle many heavy computations at once, so it will make DNA analysis very easy.   By Using AI in DNA field, it can predict better race, breed, and species for sustainable development. It can remove inferior qualities from breeds or species. Thus they can be helpful in eliminating various dangerous diseases like HIV, Cancer, Etc.

3. AI wheelchairs:
Now smart automated wheelchairs are not a fictitious thing. It has been programmed to help the Persons with Disability. The chair can be controlled by voice commands or input commands to move as individual needs without the aid of the second person. Stephen Hawking uses the features of AI to communicate.

4. Drug discovery:
For various diseases there are various medicines, these medicines require very complex data handling which could be automated by using AI. An AI can work on a new drug discovery for different diseases. It will make research very fast and efficient. An AI can predict many simulated results of first-time experiments.

5. Neuroscience:
Implementation of Artificial intelligence into neuroscience will give birth to a new technology. How the brain generates human cognition? Is the most enthusiastic question in every mind. But after collaboration between these two will reveal the answers.
We humans have done many discoveries like computers, satellites, medicines, education centers, singing, sports, communication, to name but a few, with our cognitive mind because we have larger cortex than other animals on this

planet. But the emergence of AI into neuroscience can achieve large-scale simulations of neural processes. Which will lead to betterment in cognitive thinking. The Blue Brain Project, [7] an approach to simulate the human brain into supercomputers. From the AI perspective, this project can be used to study neural architecture and human cortex, responsible for cognitive thinking.

For the first time in history, neuroscience and AI will be the key to evolving us from human to superhuman.

VI. CONCLUSION

Well, the applications of Artificial Intelligence is far stretching and limitless. Counting the abilities and achievements can be an achieved is an endless story. At present, the growth of AI is slow; we are taking small steps in achieving something big, but once a mediocre level of success is attained, then the advancement in its creation will get a boost. As by definition, artificial intelligence is programming of a machine that later programs itself giving probably the best possible outcome of an event. So if we can program a machine that upgrades itself at every new level without bugs and errors, then we can achieve a fully functioning AGI in no time. Many tech scientists believe that the attainment of the fully functioning AI will be reached within 20 years from now.

So far we have seen the advantages of AI and how it can influence our lives. Now looking at the other edge of the situation i.e. the disadvantages of implementing AI. Listing down few name of the eminent Scientists, Businessman, Tech Leaders of the world who claims that intelligent machines may not work as we intend it to.

Stephen Hawking, The renowned physicists, claims that
"The development of full artificial intelligence could spell the end of the human race,"
"It would take off on its own and re-design itself at an ever increasing rate."
"We cannot quite know what will happen if a machine exceeds our intelligence, so we can't know if it'll infinitely help us, or ignored it and side-lined, or conceivably destroyed by it," he says. **[8]**

These words by the smartest person in the planet concern us. His concern is legitimate, and many examples prove it. Perhaps the creation of intelligent machine will be our last creation. Machines will make itself so capable that one cannot even think of outperforming the abilities of it. Our existence may be unsubstantial for machines.

It is a serious concern; Google Deep Mind survival game shows how AI can become hostile and cooperative with Humans. Google proved that a machine could become hostile when subject to certain situations. The hostile nature of machines was illustrated through a gameplay of 'Fruit –Gathering simulation' and 'Wolfpack hunting game,' where two block 'red' and 'green' lives in a peaceful environment (i.e. Earth) and collect fruits (i.e. resources on earth). Points will be rewarded for collecting fruits. The players also had an option to fire each other and knock them off the game for some time. They (two AI's) co-existed peacefully until resources were plenty. After resources begin to fall scarce, guess what the AI neural network learned to do? They fired each other a lot; the desire to eliminate the other player

evolved quite early. Knocking the other down was the only chance of survival. This tendency is self –evolved i.e. without any programming to do so.

The point is if there's a conflict of resources between Machines and Humans, without giving a second thought, the machine will eliminate us and destroy us.

While we believe that contribution of AI to human life will start the New Era and flourish Human kind.

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