Artificial Intelligence and its Role in Near Future

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Abstract— Artificial Intelligence- AI technology has very long history which is actively and continuously changing and growing. It focuses on intelligent agents, which contains devices that perceives environment and based on which takes actions in order to maximize goal success chances. We are going to explain the modern AI- Artificial Intelligence and its basics and various representative applications of it. In context of modern digitalized world, Artificial Intelligence (AI) is the property of machines, computer programs and systems to perform the intellectual and creative functions of a person, independently finding ways to solve several problems, It will help us draw conclusions for every problem. The recent researches on AI, including machine learning's and deep learning's predictive analysis toward increasing analyzing, planning, learning solutions, reasoning of the problem, thinking and taking actions. Based on this, the proposed research intended towards exploring on how the human intelligence better from the artificial intelligence itself. It is necessary to find solutions on how and in what way, the current artificial intelligence is better and smarter at the same time than the human minds. Moreover, we critically analyze what the state of AI of today is capable of doing, why it still cannot reach human level intelligence and what are the open challenges. This paper will explore the future predictions for artificial intelligence and its scope based on which potential solutions will be recommended to solve it efficiently within next few decades. AI is going to add a new level of efficiency, easiness and sophistications to the future technologies in every field.

Keywords: Artificial Intelligence, Invariant representations, Neuroscience, strategy

I. INTRODUCTION

The concept intelligence usually refers to the ability to acquire and apply various different skills and knowledge to find a solution to a given problem. Intelligence is also concerned with the use of general mental capabilities to solve, reason, and learn from different situations. Intelligence is always integrated with various cognitive functions for example language, attention, planning, memory, perception. The evolution of intelligence can be basically studied about in the last decade. Intelligence involves both Human and Artificial Intelligence. In case, critical human intelligence is concerned for solving problems, reasoning and learning. Furthermore, humans have simple complex behaviors which they can easily learn in their entire life.

Today's Artificial Intelligence (robotics) has the capabilities to imitate human intelligence, performing various tasks that require thinking and learning, solve problems and make various decisions. Artificial Intelligence AI is a software programs that are inserted into robots and machines, computers, or other related systems which them necessary thinking ability. However, much of the current Artificial Intelligence systems robotics and machines are near under debate as they still need more research on their way of solving tasks. That is why Artificial Intelligence AI machines or systems should be positioned to perform the tasks without exercising errors. Additionally, Robotics should perform various tasks without any human control or assistance easily.

Recent studies showed us, Artificial intelligence is reflected as the artificial representation of human mind which tries to simulate their learning process with the aim of replicating and making it better than human brain power. It is must to re-assure everyone that AI equals or may be better than that of human brain which is unable to be created. Till now, we operate only part of our capabilities. Recently, the level of knowledge base is rapidly growing; it takes only a part of the human brain. As the potential of human brain power is incommensurably higher, we can now imagine and prove. Within human brain, there are approximately 100 trillion electrically conducting cells or neurons, which provide an incredible computing power to perform the tasks rapidly and efficiently. It is analyzed from the research that till now computer has the ability to perform the tasks of multiplication of 134,341 by 989,999 in an efficient manner but still unable to perform the tasks such as learning and understanding of world and recognition of human faces.

A. Where Does AI is Different from Human Brain

Artificial intelligence is the potential of computer controlled machines or robots towards performing tasks that that almost or similar to human beings. In this case, Artificial intelligence is used to develop various robots that have human intellectual characteristics, behaviors, learning from past experience, have abilities to sense, and abilities to making predications and determine meaning of certain situation. Robotics technology is heavily trending in the current life which has gained popularity in various aspects such as industries, hospitals, schools, music, military, gaming, quantum science and many others. Artificial Intelligence is an efficient means that make computers and software control robotic thinking with expert systems that significantly illustrate the intelligent behavior, learning and effectively advice users. Generally speaking, AI is basically known as the ability or potential of robotics or machines to analyze and decide, solve problems and reason. There are various innovations of Artificial Intelligence, for example robotic cars which don't require a driver to control or supervise them. In addition, artificially intelligent technology (robots) involves smart machines that process a large amount of data that a human being can't be in position to perform. By so robotics and machines are assuming repetitive duties that require creativity and knowledge base. Furthermore, Artificial Intelligence (AI) is the combination of various technologies that give chance to robotics to understand, learn, perceive or complete human activities on their own. In this case, Artificial Intelligence programs (robots) are built for a specific purpose such as learning, acting and understating whereas humans intelligence is basically concerned with various abilities of multitasking. In general, an Artificial Intelligence tool is majorly concerned with emphasizing robotics which portrays

human behaviors. But however, Artificial Intelligence may fails out somewhere due to differences in human brain and computers. In brief, Artificial Intelligence has the potential to mimic human character or behaviors. Furthermore, Artificial intelligence is currently partially developed without advanced abilities to learn on their own but instead given commands to act on. This will be the ultimate future of artificial intelligence, where the AI machines will be recognized the human behavior and emotions and will train their kernel as per it.

B. Why Can't We Tell Today's AI is as Clever as Human Beings

Generally, there are various ways towards building the intelligent machines that enables the humans to build the super machines and provides the intelligence to machines towards redesigning their own programming in order to increase their intelligence standards, which is usually considered as the intelligence explosion. The breakthrough of AI technology can be more frighten the humanity in a way that machine are unable to effectively transmit the emotions. So, there can be possibility that AI can support us with the tasks and functions and logics which usually not involves the feelings and emotions. Till this time, AI machines are not able to control their processes, for which they need the intelligence and mind of humans. But AI development with same pace can lead threat to the humanity in near future, because the self-learning ability may cause the AI machines to learn destructive things, which may cause killing of humanity in a drastic way. In general, there exist various characteristics which distinguish human level intelligence with Artificial intelligence and they include the following;

Thinking ability can be both positive as well as negative at the same time because of having emotions, which are not related with AI machines. The lack of machines emotion may lead to destructive in a situation where emotions are required. Experts believes that machines would be able to think in a weak manner. In general, there are things that computers cannot do, regardless of how they are programmed and certain ways of designing intelligent programs are doomed to failure sooner or later. Therefore, most accurate idea will be to think that it is never going to make the machines have a thought at least similar to human. The lack of thinking ability of machines or robots may cause in lack of passing the behavioral tests. What was later called the Turing Test, proposed that a machine be able to converse before an interrogation for five minutes for the year 2000 and in fact, it was partly achieved. It is concluded then, that the machines can actually think, although they can never have a sense of humor, fall in love, learn from experience, know how to distinguish the good from the bad and other attitudes of the human.

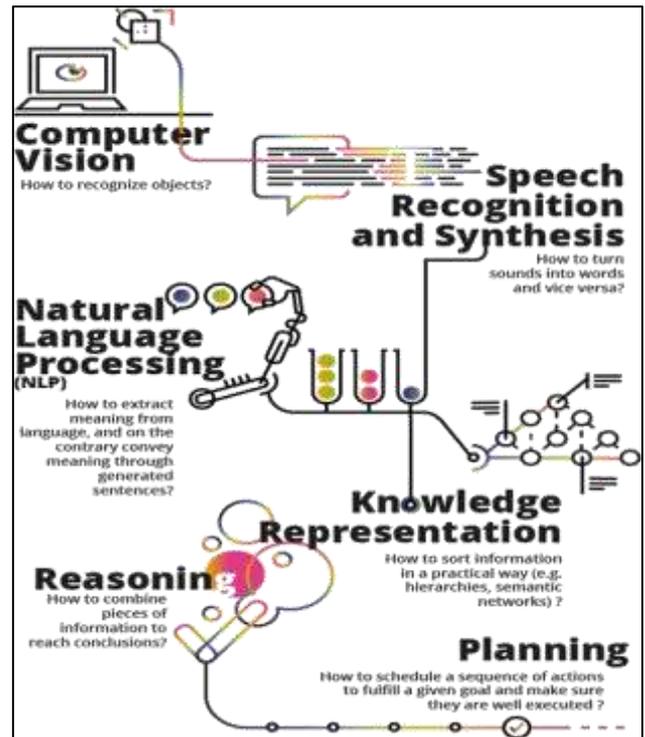## II. ABILITIES OF ARTIFICIAL INTELLIGENCE

Fig. 1: Abilities of AI

Artificial Intelligence has facilitated us all in almost every field of life and has immense scope in future for more productivity and betterment. The origin of artificial intelligence goes back to the advances made by Alan Turing during World War II in the decoding of messages. The term was first used in late 1950's, but it was only in the 1980s when research began to grow with the resolution of algebra equations and analysis of texts in different languages. The definitive takeoff of Artificial intelligence has come in the last decade with the growth of the internet and the power of microprocessors. "Artificial intelligence AI may be the most disturbing technology the world has ever seen since the industrial revolution" till date. Accenture's chief technology officer, recently wrote in an article published by the World Economic Forum. This field is now booming due to the increase in ubiquitous computing, low cost cloud services, new algorithms and other innovations, adds Daugherty. Developments in Artificial Intelligence AI go hand in hand with development of processor's that over time have made them start to see these technologies as intellectual, even changing our idea of intellect and forthcoming the perceptions of 'machines', traditionally un-intelligent capacities previously assigned exclusively to man. The AI was introduced to the scientific community in late 1950's by the English Alan Turing in his article "Computational Machinery and Intelligence" Although research on the design and capabilities of computers began some time ago, it was not until Turing's article appeared that the idea of an intelligent machine captured the attention of scientists. The work of Turing, who died prematurely, was continued in the United States by John Von Neumann during the 1950s .His central contribution was the idea of that computers should be designed by the human brain as a model. Von Neumann was the first to anthropomorphize the language and conception of

computing when speaking of memory, sensors etc. of computers. He built a series of machines using what in the early fifties was known about the human brain, and designed the first programs stored in the memory of a computer.

A. What Is Missing to Todays Ai Still to be Called Human Level Intelligence?

Humans are different from Artificial Intelligence machine physically in a sense that human race usually experiences the same physical features while the machines takes several forms and shapes. The trans-humanist vision analysis exhibits us to believe that brains are principally the computers. AI reports are the silicon based machines, which was controlled by using the algorithm that reinforces entire internet business.

AI believes that once the computers have adequate advanced algorithms, then they will be capable to replicate and enhance the human mind. The tests which shows how AI is distinct from the human intellectual's capacities are as follows Turing test; in order to evaluate on what intelligence means and on how the machine intelligence is different than the human intelligence, the Turing test strongly provide the essential insights to the AI field, which emphasis on how the machine simulates the human thinking. The algorithmic aspect's of AI tools must pass the Turning Tests. These algorithms won't essentially results in the AGI but may also lean towards applied artificial intelligence. The algorithm tuned through Turing process can also significantly define and passed it.
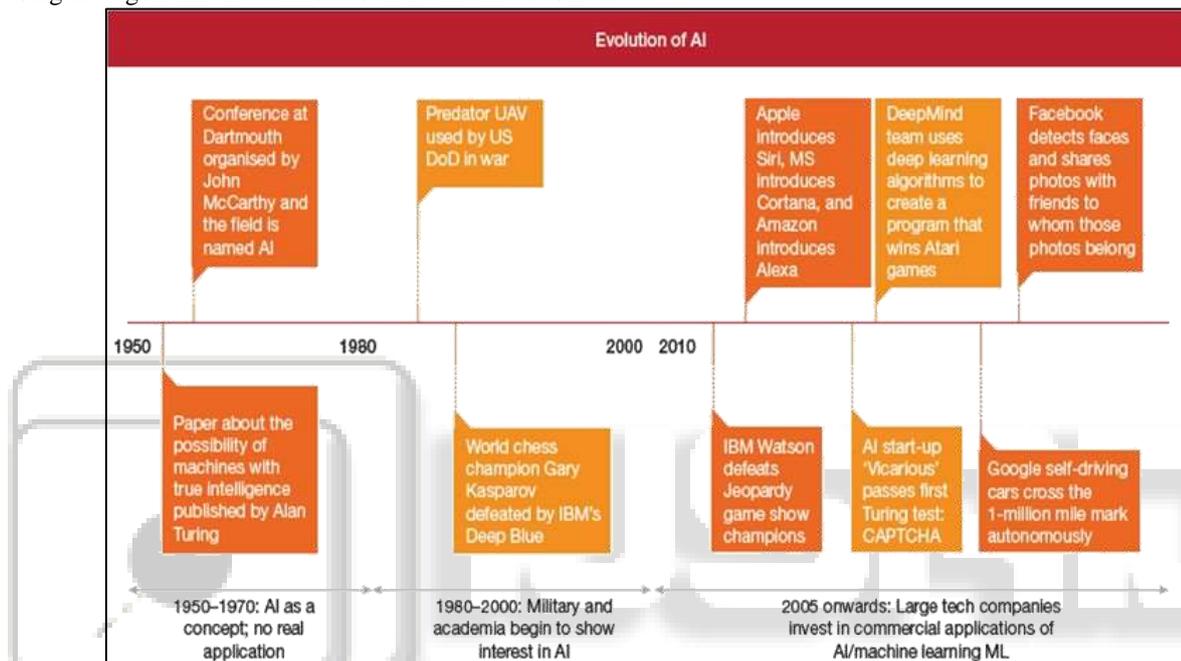

Fig. 2: Timeline Evolution Is AI

III. WHAT ARE SOLUTION SUGGESTIONS

To reduce the destructive effects of Artificial Intelligence, it is essential to the development of symbolic approaches, which should allow us to operate with weakly formalized representations and their meanings. The success and effectiveness of solving new problems depend on the ability to allocate only essential information, which requires flexibility in the methods of abstraction. While a normal program sets one's own way of interpreting the data, which makes its work look prejudiced and purely mechanical. The intellectual tasks are solved only by the person, the analyst or the programmer, not knowing to entrust this machine. As a result, a single abstraction model is created, a system of constructive essences and algorithms. And flexibility and universality translate into significant resource costs for non-typical tasks, that is, the system from the intellect returns to brute force. Furthermost, the hybrid approaches should also be developed in order to provide the synergistic combinations of neural and symbolic models achieves a full range of cognitive and computational capabilities. For example, expert rules of inference can be generated by neural networks, and generating rules are obtained through statistical training. Supporters of this approach are believed that hybrid

information systems will be much stronger than the sum of different concepts separately. Furthermore, to decrease the potential threats of artificial intelligent technology, the rational risk management process that includes the potential principles.

IV. CONCLUSION

In this way, artificial intelligence can be achieved greatly discoveries and advances for humanity due to its multiple possibilities in future. Most of the artificial intelligence AI systems have the ability to learn, which improves their performances over time. The evidence suggests that AI can provide real value to our lives.AI bases its operation on accessing huge amounts of information's, processing, analyzing it and according to its operations and algorithms, executing tasks to solve certain problems. Due to the new computing architectures of the cloud, this technology becomes more affordable for any organization.

REFERENCES

[1] J. Shabbir and T. Anwer, "A Survey of Deep Learning Techniques for Mobile Robot Applications," ArXiv e-prints, Mar. 2018.

[2] U. Neisser, G. Boodoo, T. J. Bouchard Jr, A. W. Boykin, N. Brody, S. J. Ceci, D. F. Halpern, J. C. Loehlin, R. Perloff, R. J. Sternberg et al., "Intelligence: Knowns and unknowns." American psychologist, vol. 51, no. 2, p. 77, 1996.

[3] R. Feuerstein, the Dynamic Assessment of Cognitive Modifiability: The Learning Propensity Assessment Device: Theory, Instruments and Techniques. ICELP Press, 2002. [Online]. Available: https://books.google.com.pk/books?id=-3vsAAAAMAAJ

[4] M. Milford, C. Shen, S. Lowry, N. Suenderhauf, S. Shirazi, G. Lin, F. Liu, E. Pepperell, C. Lerma, B. Upcroft et al., "Sequence searching with deep-learnt depth for condition-and viewpointinvariant route-based place recognition," in Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops, 2015, pp. 18–25.

[5] K. Fragkiadaki, S. Levine, P. Felsen, and J. Malik, "Recurrent network models for human dynamics," in Computer Vision (ICCV), 2015 IEEE International Conference on. IEEE, 2015, pp. 4346–4354.

[6] S. Niekum, S. Osentoski, G. Konidaris, S. Chitta, B. Marthi, and A. G. Barto, "Learning grounded finite-state representations from unstructured demonstrations," The International Journal of Robotics Research, vol. 34, no. 2, pp. 131–157, 2015.

[7] C. Devin, A. Gupta, T. Darrell, P. Abbeel, and S. Levine, "Learning modular neural network policies for multi-task and multirobot transfer," in Robotics and Automation (ICRA), 2017 IEEE International Conference on. IEEE, 2017, pp. 2169–2176.

[8] C. Finn, X. Y. Tan, Y. Duan, T. Darrell, S. Levine, and P. Abbeel, "Deep spatial autoencoders for visuomotor learning," in Robotics and Automation (ICRA), 2016 IEEE International Conference on. IEEE, 2016, pp. 512–519.

[9] A. A. Rusu, M. Vecerik, T. Rothorl, N. Heess, R. Pascanu, and ¨ R. Hadsell, "Sim-to-real robot learning from pixels with progressive nets," arXiv preprint arXiv:1610.04286, 2016.

[10] S. Mohamed and D. J. Rezende, "Variational information maximisation for intrinsically motivated reinforcement learning," in Advances in neural information processing systems, 2015, pp. 2125– 2133.

[11] Y. Zhu, R. Mottaghi, E. Kolve, J. J. Lim, A. Gupta, L. Fei-Fei, and A. Farhadi, "Target-driven visual navigation in indoor scenes using deep reinforcement learning," in Robotics and Automation (ICRA), 2017

[12] F. Cruz, J. Twiefel, S. Magg, C. Weber, and S. Wermter, "Interactive reinforcement learning through speech guidance in a domestic scenario," in Neural Networks (IJCNN), 2015 International Joint Conference on. IEEE, 2015, pp. 1–8.

[13] A. Vinciarelli, A. Esposito, E. Andre, F. Bonin, M. Chetouani, J. F. ´ Cohn, M. Cristani, F. Fuhrmann, E. Gilmartin, Z. Hammal et al., "Open challenges in modelling, analysis and synthesis of human behaviour in human–human and human–machine interactions," Cognitive Computation, vol. 7, no. 4, pp. 397–413, 2015.