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Artificial Intelligence Auxiliary Technologies And Applications

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Abstract—

Artificial intelligence (AI) researches the intelligence exhibited by machines. It creates revolutionized information technology. The world famous companies like Google, Yahoo, Facebook, and so forth have spent millions of dollars to research on developing new algorithms on AI. Neverthe-less, there are a number of challenging issues in realistic applications due to fast-growing large and complex problems.

This special issue aims to bring together academia and industry experts to report on the recent developments on artificial intelligence and its applications, in every aspect of artificial intelligence technology, including machine learning, data mining, computer vision, multiaget systems, evolutionary computation, deep learning, and fuzzy logic. The primary guideline was to either demonstrate the most significant developments on the topics of AI or apply AI-related algorithms in real-life scenarios.

This paper reviews the meaning of artificial intelligence and its various advantages and disadvantages including its applications. It also considers the current progress of this technology in the real world and discusses the applications of AI in the fields of heavy industries, gaming, aviation, weather forecasting, expert systems with the focus being on expert systems. The paper concludes by analyzing the future potential of Artificial Intelligence.

Keywords- Turing Test, Gaming Industry, Weather Predictions, Expert System

1. INTRODUCTION

Artificial intelligence (AI) is defined as intelligence exhibited by an artificial entity to solve complex problems and such a system is generally assumed to be a computer or machine. Artificial Intelligence is an integration of computer science and physiology Intelligence in simple language is the computational part of the ability to achieve goals in the world. Intelligence is the ability to think to imagine creating memorizing and understanding, recognizing patterns, making choices adapting to change and learn from experience. Artificial intelligence concerned with making computers behave like humans more human like fashion and in much less time then a human takes. Hence it is called as Artificial Intelligence. Artificial intelligence can be divided into parts according to philosophy of AI.

i) Strong Artificial intelligence

ii) Weak Artificial intelligence

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Strong Artificial intelligence

The principle behind Strong AI is that the machines could be made to think or in other words could represent human minds in the future. Thus Strong AI claims that in near future we will be surrounded by such kinds of machine which can completely works like human being and machine could have human level intelligence. If that is the case, those machines will have the ability to reason, think and do all functions that a human is capable of doing. Current research is nowhere near creating strong AI, and a lively debate is ongoing as to whether this is even possible. [5] discussed about E-plane and H-plane patterns which forms the basis of Microwave Engineering principles.

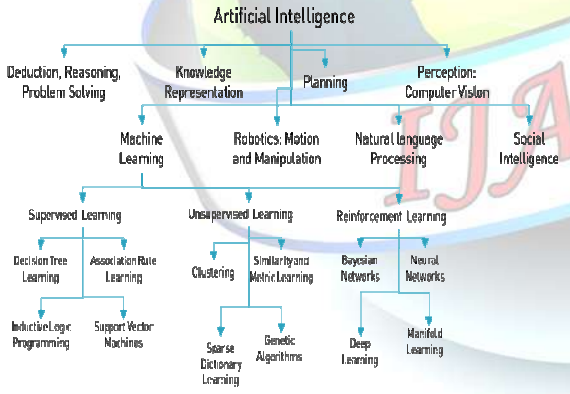

Fig a. Artificial Intelligence Overview

Weak Artificial intelligence

The principle behind Weak AI is simply the fact that machines can be made to act as if they are intelligent. Weak AI simply states that thinking like features can be easily added to computer to make them more useful tools and this already started to happen. For example, when a human player plays chess against a computer, the human player may feel as if the computer is actually making impressive moves. But the chess application is not thinking and planning at all. All the moves it makes are previously fed in to the computer by a human and that is how it is ensured that the software will make the right moves at the right times. More examples of Weak AI are witness expert systems, drive by wires cars and speech recognisation systems Artificial Intelligence (abbreviated as AI) is the capability of a device to perform activities, which would otherwise only be expected of the human brain. These activities include the capacity for knowledge and the ability to acquire it. It also comprises of the ability to judge, understand relationships and last but not least produce original thoughts.

$$I=A+R+P$$

Where I is Intelligence, A is Analyses, R is React, P is perceive

Also, there is a huge different between short term memory and RAM. Short-term memory holds pointers to the long-term memory where all the information is actually stored while RAM stores data that is isomorphic to data being held on a hard disk. Also, RAM has a memory limit while there seems to be no capacity limit when it comes to short-term memory.

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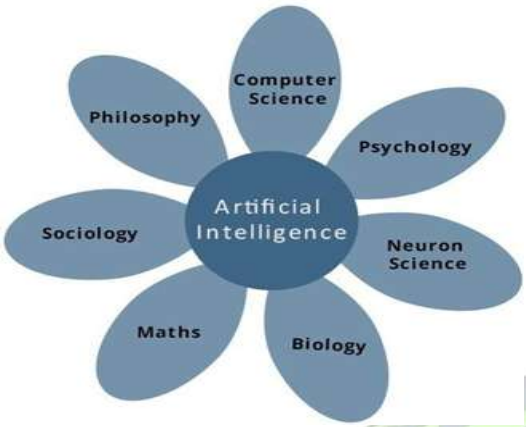

Fig b. Artificial Intelligence Area

Turing Test

The Turing test is a test of a machine's ability to exhibit intelligent behavior. The test was introduced by Alan Turing in his 1950 paper Computing Machinery and Intelligence. The original question behind this test was "Can machines think? ". The test proceeds as follows a human judge engages in a natural language conversation with one human and one machine, each of which tries to appear human. All participants are placed in isolated locations. If the judge cannot reliably tell the machine from the human, the machine is said to have passed the test. In order to test the machine's intelligence rather than its ability to render words into audio, the conversation is limited to a text-only channel such as a computer keyboard and screen." Sufficiently many interrogators are unable to distinguish the computer from the human being then it is to be concluded that the computer thinks.

2. ADVANTAGES AND DISADVANTAGES

- One of the major advantages of artificial intelligence is that its decisions are based on facts rather than emotions. Even after our utmost efforts, it is a well-known fact that human decisions are always affected in a negative way by our emotions.
- Unlike humans, machines with artificial intelligence do not need any sleep, thus overcoming the inherent disadvantage of tiredness in humans passing on knowledge to other humans through training.
- Easier spreading of knowledge. Once an artificial mind is trained for something, it Lack of creativity in responses
- Inability to explain the logic and reasoning behind a certain decision
- Current development is at a stage where the AI cannot know when there is no solution to a particular problem can be very easily copied to the others reducing the time wasted in otherwise
- Any malfunctioning can lead to the AI producing wrong solutions and since it cannot explain the reasoning behind its answer, blind reliance on AI can lead to problems
- Lack of common sense in reasoning can also cause major problems
- It can be used to cause mass scale destruction if given in the wrong hands

Such a lot of being stated, a standout amongst the most concerning issue with the improvement of AI is that it will soon begin substituting people in each field in this way causing a high rate of joblessness, which would prompt discouragement, wrongdoing and neediness. Likewise, there are a few fields that require the human touch and there is a developing feeling of conviction that machines

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will conceivably never have the capacity to supplant people. The minding conduct of medical attendants in doctor's facilities is one case of work that people feel machines will never have the capacity to do equity to.

3.CURRENT PROGRESS

Artificial Intelligence was created with the sole aim of mimicking or even outperforming human minds. Thus it is very important we question the fact whether it has actually been able to do so.

It cannot be ignored that the fact of AI is being used

all around us especially in the fields of medicine, robotics, law, stock trading etc. It is being used in homes and big establishments. such as military bases and the NASA space station. NASA has sent out artificially intelligent robots to planets so as to learn more about their habitat and atmosphere, with the intention of investigating if there is a possibility of humans living on these planets. Expert systems have been used by Mercedes Benz and other auto manufacturers in the design of vehicle components, subway systems in Washington, D.C. use expert system software controllers to cause subway trains to stop within 3 inches of the right spot on the platform.

These trains have motormen primarily to reassure passengers. AI has filtered into general applications in these fields and has become so common that it is not referred to as Artificial Intelligence anymore. Blind supporters of AI would point to the time when AI Deep Blue defeated chess master Garry Kasparov to prove that Artificial Intelligence can in fact be smarter than humans. Though there is no doubt that the AI Deep Blue II won that game, it is still probably one of the dumbest software alive. The operators were programming the AI in every round depending on the opposition's last move. Also, the DeepLatest technologies like Xbox 360‟ s Kinect and iPhone‟ s Siri use algorithms based on Artificial Intelligence, but it is a well-known fact that these technologies are a long way from being perfect. Thus we can safely conclude that though Artificial Intelligence has made a lot of progress in the past few decades, it is not at a level where in one can confidently state that it is now ready to completely replace the human mind. That being said, large-scale research is now being conducted into the field of proper simulation of the human brain. Cortex is a project by Artificial Development Inc. and Swiss government's IBM sponsored Blue Brain Project, are two main ventures, whose goal is to simulate the human brain.

4.APPLICATIONS

A long time ago machines and computers were invented to reduce manual efforts and time so as to perform the tasks efficiently. After a lot of growth and development in the field, we have finally come to a stage where almost everyone has access to technology. However, this is actually just a beginning because the upcoming advancement is going to take a much bigger and better shape in the form of Artificial Intelligence.

Although AI is a branch of computer science, today there's no field which is left

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unaffected by this technology. The aim is to teach the machines to think intelligently just the way humans do. Till now, the machines have been doing what they were told to do but with AI they will be able to think and behave like a human being. The study focuses on observing the thinking and learning a pattern of humans and then the outcome is used to develop intelligent softwares and systems.

Today tech giants like Google, Microsoft, and IBM are highly involved in studying developing the technology which has already started bringing a revolutionary change. Although it is going to shape our future, yet we need to know how it's affecting our present life. So, in order to give you a glimpse of the same, we are here with a list of some industrial applications of AI, which is as follows:

1. Journalism

In today's digital world, reading blogs and articles has become a common practice for most of us but hardly do we realize that some of them are actually written by machines**.** Although it can't be used for writing in-depth articles but the simple reports that don't require much analysis can be easily prepared by AI.

Fig c. Artificial Intelligence Application 1

2.Entertainment

Use of Artificial Intelligence is quite popular in the entertainment industry. Whether it's the video games or music apps, we all are well aware of the concept. Talking about games, the idea is not new and is being utilised from the very beginning but today it has just grown exponentially. Games like **Middle Earth, Far Cry** are known for imparting personalities to the characters where they find objects, shoot, take cover and do everything possible for victory**.**

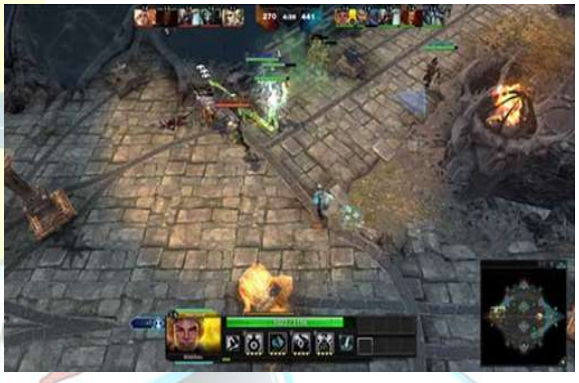

Fig d. Artificial Intelligence Application 2

3. Online Retail Stores

With the introduction of online retail stores, people have started making the online purchase a habit which is quite at its peak right now. These websites also use artificial intelligence in certain ways like recommending the customers what to purchase depending upon his/her past purchases or items put in the search box. Another way is providing chat bots for seeking guidance or for solving queries.

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Fig d. Artificial Intelligence Application 3

4.Automobiles

It's a well-established fact that **Google's Driverless cars** and **Tesla's Autopilot** features have already paved their way towards the introduction of AI in automobiles. Whether it's self-parking, detecting collision, blind spot monitoring, voice recognition, or navigation, it's almost like the car is acting as an assistant to the owner and teaching different ways of a safe driving.

Elon Musk, popularly known as the founder of Tesla Motors, tweeted that soon a day will come when people will be able to 'Summon' their car wherever they want to and it will reach there on its own using navigation and track the location of the person. He is even working on introducing a fully automated transportation system that will use levitation for the commute.

Fig e. Artificial Intelligence Application 4

5. Home Appliances

All the smart devices and gadgets used in our daily lives that feature IoT technology also make use of Artificial Intelligence. The technique is to learn the behavior and usage pattern shown by the user and then accordingly the appliance starts behaving in a similar manner on its own without needing any instructions.

If we talk about specific electronic appliances, then thermostat and smart light features utilize AI quite interestingly. It can set the temperature of your home just the way you want it at different hours of the day. Likewise, the light effects can be modified with the amount of dimness and brightness as preferred by the user at different time periods.

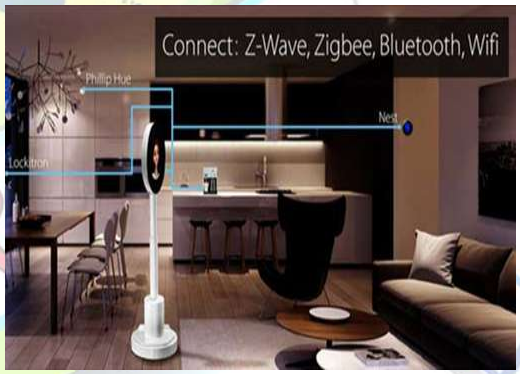

Fig f. Artificial Intelligence Application 5

5.FUTURE ASPECTS

The use of artificial intelligence will lead to production of machines and computers, which are much more advanced than what we have today. Speech recognition systems will reach much higher levels of performance and will be able to communicate with humans, using both text and voice, in unstructured English. There will be a great future some day for expert system applications in all aspects of health care, in both

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clinical and administrative areas, in improving patient care and in allocation of financial, social, and other resources. But when it comes to the question of Artificial Intelligence creating machines, which are more intelligent than human beings, no one seems to have the answer. Also, even if it is possible, the amount of time it will take cannot be predicted. It is also expected to have human brain features like learning from experience, cognition and perception. Whether human consciousness will be incorporated in these machines is still not known. Robots in the future will be able to do everybody's work and will be faster and more efficient as compared to human beings in doing it. If one is ill, they can hire a robot nurse that will provide them with medicines at proper intervals. Thus it can be safely said that Artificial Intelligence is still in its embryonic stage and its future depends only and only upon the scientists solving the mystery of the human brain. Till that is done, no one can make a conclusion of whether our future will be affected positively or negatively by Artificial Intelligence.

6.CONCLUSION

Artificial Intelligence has been growing in all thetechnologically relevant fields but it is also spreading in the areas where nobody had imagined it to be. This may sound like a progress but it can be equally disruptive in future. It is believed that AI is a very sensitive issue and if not handled with care, it could end up imparting '**Superintelligence**' to machines which would make them even more intelligent than humans.

The computing world has a lot to gain or benefits from various AI approaches. Their ability to learn by example makes them very flexible and powerful. Furthermore there is no need to devise an algorithm in order to perform a specific task i.e. there is no need to understand the internal mechanisms of that task. They are also very well suited for real time systems because of their fast response and computational times which are due to their parallel architecture. The goal of artificial intelligence is to create computers whose intelligence equals or surpasses humans. Achieving this goal is the famous "AI problem from last decade researchers are trying to close the gap between human intelligence and artificial intelligence.

REFERENCES

[1] Satvika Khanna et al. "Expert Systems Advances in Education" NCCI 2010 -National Conference on Computational Instrumentation CSIO Chandigarh, INDIA, 19-20 March 2010

[2] Kaijun Xu." Dynamic neuro-fuzzy control design for civil aviation aircraft in intelligent landing system. Dept. of Air Navig. Civil Aviation Flight Univ. of China 2011.

[3] Eike.F Anderson.,"Playing smart artificial intelligence in computer games" The National Centre for ComputerAnimation (NCCA) Bournemouth University UK.

[4] K.R. Chaudhary "Goals, Roots and Sub-fields of Artificial Intelligence. MBM Engineering College, Jodhpur, India 2012

[5] Christo Ananth, S.Esakki Rajavel, S.Allwin Devaraj, M.Suresh Chinnathampy. "RF and Microwave Engineering (Microwave

Engineering).", ACES Publishers, Tirunelveli, India, ISBN: 978-81-910-747-5-8, Volume 1,June 2014, pp:1-300.

[6] Girish Kumar jha, "Artificial Neural Networks and its applications" international journal of computer science and issues 2005.

[7] Nils J Nilsson American Association for ArtificialIntelligence" AI magazine 2005.

[8] Xindong Wu, Senior Member, IEEE "Data Mining: An AI Perspective" vol.4 no 2 (2004)

[9] Bruno Rocha Panda, Renato and Rui Pedro Paiva. Music emotion recognition with standard and melodic audio features. Applied Artificial Intelligence 29.4, 2015. [313-334].

[10] Piotr Synak Wieczorkowska, Alicja and Zbigniew W. Ras. Multi-label classification of emotions in music. Intelligent Information Processing and Web Mining. Springer Berlin Heidelberg, 2006. [307-315].

[11] Wikipedia. K-nearest neighbors algorithm — wikipedia, the free encyclopedia. https://en. wikipedia.org/w/index.php?title=K-nearest_neighbors_algorithm&oldid=703845104 , 2016. [Online; accessed 10-February-2016].