

# Review of Artificial Intelligence AI

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**Abstract-** The development of areas interested in Artificial Intelligence is just a small percentage of the computer revolution. So Artificial Intelligence is still a young science, but this doesn't prevent researchers to be confident that they are in the right direction. In this survey we'll introduce the Artificial Intelligence from different angles. First we provide the definitions for the term Artificial Intelligence, and then we provide a brief historical description for the interactive form of the Artificial Intelligence. Beside that we'll conclude an over view of some modern applications and related visions.

**Index Terms-** Artificial Intelligence, high tech, emotions and thinking.

## I. INTRODUCTION

The computer revolution made a huge impact in many fields of ordinary lives. And lately it becomes very difficult to see a machine without a computer. With this revolution, the term Artificial Intelligence came to the surface. It is deeply believed that the term and its theories have existed long before recorded, and see the light after the invention of the electronic computer in the early 1941[1].

The attempt to give a complete picture isn't easy; a lot of definitions and questions surrounding the term, and make the environment a little foggy. The early task starts with the big questions of how the human mind works, how the stored information inside the brain cooperates to solve a wide range of problems, and how the conclusions get from this information. Solving these questions help the scientists and programmers to translate the brain into Artificial Intelligence programs that take the full benefit of the computer and allowed the programmers community to give various definitions to the term. The straight forward definition is to use computer programs using Artificial Intelligence to replace the complex human thought tasks and processes, and this is done by simulating the human logic on a machine. This will lead the machine one day to be an expert in many areas, allowing them to be as creative as human, and analyze complex data to get the benefit from every single detail.

The Artificial Intelligence will perform complex and hard tasks for us; its smartness may go beyond the human intelligence. The perfect use of the computer and its programs will enable the human to do things better and faster. [3] Not only this, it is deeply believed that the machine might perform behavior, and this behavior if carried out by a human would require some degree of intelligence.

The wondering questions continue and continue, and some people might think that the computer is a substitution of the

mind. A claim might influence that if programmers and scientists programmed a computer with the smart complex programs, and if this computer have the suitable inputs and outputs, then it would have emotions and senses in exactly the same sense in which humans have feelings and emotions. Scientists said that this newly programmed computer would independently have its own mind. So if there were an Artificial Intelligence's Practical Applications, or AIPA, program that highly matched human cognition, then scientists would loudly say that they have created an actual smart mind.

To make the picture relatively obvious, a well known example always mentioned, the chess game. Chess always considered the ultimate "thinking" game. In a very famous match, the champion Gary Kasparov beat the Deep Blue, the IBM's supercomputer, 4 games to 2 in 1996. Taking into the account that the IBM's supercomputer was able to evaluate 200 million moves a second, this amazing capability, enables easily the computer won any match versus anybody, but despite of this, Kasparov was able to win. This competition made many philosophers and scientists ask many questions about the Artificial Intelligence starting from the wondering if there is any reason to doubt a computer's ability to understand and think? Another important question arises: should a computer be able to take decisions that directly depend on emotional beings? I.e. can the computer read its competitor eyes and predict what to do and what will the next step be.

Looking into people and computers as individual capacities, it may easily be seen that they are not very different, but the education and organization that structure both may be very different. So this lead to another important question: should our decisions be made by computers for us? The answer to this question may yes, but taking into consideration that the computer should be well qualified to do so, this is essentially made the quality control (QC) tests are used to build a qualified decision-making computer.

The list of questions goes on, and the attempts to solve these questions may help defrosting the term. In general, it is a daunting notion. These attempts make the computer programmers to wish creating machines that learn rather than machines that should be programmed previously. It has become the dream of a large percentage of engineers that the "mechanisms of human brain could be simulated on a computer". [1] Achieve this dream is known as Artificial Intelligence.

## II. LUMINOUS STATIONS OF AI

The first beginning with the term Artificial Intelligence was exposed to our culture was the birth of Science Fiction, Mary

Shelley Frankenstein. It is a story wrote early in 1940s. At the end of this story, the readers are left asking if there are limits and boundaries beyond the human brain or if there is more to think about using the human brain? Many other Science Fiction writers used this idea in their writes until they reach to the level of robot, a non-human thinking machine. The story began in the summer of 1956 by Marvin Minsky, who was involved in establishing Artificial Intelligence by using the Science Fiction as his main motivators to enter the world of Artificial Intelligence. During the same summer, a meeting was held between the scholars of Dartmouth College, who would later be considered the founding fathers of Artificial Intelligence. The meeting was considered a focal point in the study of Artificial Intelligence. It opened the doors for many ideas, questions and theories for ordinary people and scientists to attempt to solve together of questions of what is important and essential for thinking [8].

In the mid 1960's, Marvin Minsky improved his motivator in Science Fiction and created a computer program that many scientists next believed to be the Artificial Intelligence. Marvin Minsky wasn't very sure of his achievement until another scientist, Joseph Weizenbaum, stepped forward with a stronger representation of AI. Weizenbaum and Minsky then cooperated and produced more complicated computer programs.

The improvements continued in the computer programs and took different but higher levels until the successful in creating the joke generator, which was a calculator that matched specified groups with behaviors of humans that were programmed in as options. A different subject line was created in the mid 90's by Kim Binstead, her program, JAPE (Joke Analysis and Production Engine), was able to rearrange different words according to meanings and vowels to create smart puzzles.

Nowadays, the Alliance Simulation Group ASG is a syndicate of computer programmers and players interested to evaluating rich simulations of known science-fiction movies like Star Trek, Star Wars, Terminator and Babylon. Some are just text-based but others are full with sounds and graphics. The movie characters could walk, talk and do actions by its self simulating a human through the use of Artificial Intelligence and in some extensive scenes the viewers could notice that the movie star might learn from their mistakes. [4] [6].

### III. MODERN APPLICATIONS AND RELATED VISIONS

The computer industry should face the difficulties created by the fast improvement in high tech, it should be able to create programs and applications that solve many human thought processes, and create systems to analyze and create data to meet the customer and the community needs.

There are many applications around us capture the meaning of AI. The simplest application is the computer games, the development in this industry in the last three decades accounts for billions of dollars every year. The persons engaged in computer games develop this industry in a variety of formats: simulation games, action games, adventure games, interactive games and fighting games. The high tech improvement in computer games enables the founders to test their creativity and their own intelligence.

Computer games move along way before it can have a drastic clutch. This industry asks its designers always to develop programs that would simulate human behaviors in order to improve more sophisticated games. To achieve this dream, the designers simulate the reality and lately achieve a more interactive form of this rapid industry the 3D games which spread widely and let the player feel deeply as he is inside the game. The 3D computer games present challenges to human mankind, it is not only a computer-controlled actions of the soldiers and animals inside these games but also an exploration of human creativity.

Another application made the researchers pushed forward to uncover new ground, the invention of robots. Robots are used widely in many fields, and many believed that they should only be for unthinking and repetitive tasks or for dangerous but straightforward tasks [7]. In the mid of the last century, the major car factories had a few hydraulically machines, they were all hand crafted. Nowadays companies like TOYOTA who produce many types and models every year depends majorly on robots as workers. Many jobs inside such companies are considered to be robots job exclusively.

Many fields were invaded by robots like modern car wash stations, the robotic machine here uses its senses to tell the main computer what temperature the water should be, what detergents should be used, and the style of wash the car is getting, e.g. Normal or Super wash. Some robots are invisible to the naked eye, so they called small insects, and are used and have been developed for medical treatments; they can help with diabetes patients since it can operate like an insulin injecting pump, this insulin spread to the whole body instead of the defected pancreas. These medical robots could also be helpful with intracellular surgeries like spinal cords surgeries and ophthalmological surgeries. In these medical fields, doctors can depend on robots since they are more efficient, adaptive to the task at hand and professional to use some of the instruments as very precise tools. Not only this, but some systems were designed to be capable of diagnosing diseases, administering drugs and taking actions automatically on patients.

Robots also used widely in modern armies, they are now considered to be employers in the huge American government Agency the FBI. Robots can help in dismantling bombs from a site without putting the soldiers' life in dangerous. Robots are used to large extent in warfare, a recent example of using AI in warfare is the Gulf War, one of the final reports said that many high tech weapons such as 'Smart Bombs' were used, it looks like a very sophisticated systems which used superior guidance capabilities but internally they don't contain any neural networks. The use of robots in warfare is also risky when it fall in the wrong hands, used in the wrong ways and when sophisticated computer systems thought to be flawless but indeed it may have. This has been proven to be right when a whole British battalion of armored vehicles were accidentally annihilated by an allied American stealth [5]. The Gulf War gave a clear proof that it is serving its ultimate purpose and when used in the appropriate field can move men far away from the killing fields.

A daily known example is the computers that auto-fix problems in modern vehicles, like the smart mirror in front of the driver, which can absorb the strong light from the cars behind the estimated car, so this will not conflict the driver. Some modern

cars prevent the car moving backward when the car is very close to an obstacle and some cars have smart air conditioner which can control the temperature of the air emitted depending on the air inside and outside the driver room.

The extent use of robots in industrial, medical and many other fields will affect the workers. The owners of the major industrial factories and companies believe that human workmanship is required less and less needed. This will lead soon the workers to have no jobs and try very hard to find new jobs. Nobody denies that robots don't need a coffee breaks or a lunch time and the company that owns the machinery have control over the robot. This problem could be solved by learning the workers to do other essential jobs in the production line or in positions that robots can't do like secretary, human resources and make decisions on whether or not to hire somebody. Another problem obviously seen, a robot designed to operate a complex surgery would not be able to draw a flower, and the robot that is designed to construct a car would not be able to assemble a pen, and this is due to the shortage of information in that field. This problem occurs because the robot can't search information from its subfields and connect them together to create a smart thinking machine.

A new term appeared lately with the wide use of robots, the microbot. Which made a revolution of engineering, and the most famous microbot named Genghis, which is able to walk, turn and jump. It is considered to be full of life; it can walk over obstacles by pulling legs in and out, it can recognize the voice of its owner and meet his or her demands.

The applications go behind the borders, and with the wide use of Artificial intelligence in many fields, many new definitions for the term continue to appear taking into consideration the circumstances of completing a certain task. [9]

#### IV. CONCLUSION

Many believe that systems built upon computers could conceivably handle any problem, as long as the system proves itself. But the human works indeed indirectly lead to the solution of the problem. Actually the more critical the problems that system must deal with, the more efforts should be taken from the programmers and the scientists. So it is extremely hard to separate between a machine to take any forward step and the human brain.

As people continue in their demands, computer revolution will not stop, and the boundaries drift away, but people should keep in minds that the decisions made by computers does not necessarily make the best decision and the human judgment is a major ingredient to decision making, but not necessarily at a fixed point in the system. [10]

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