Artificial Intuitions

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Abstract

AI (Artificial Intelligence) has excelled in its field in the past few years, yet there are many more concepts that we can expect to see in the coming years. Artificial intuitions can be one of them, upon which there are many researches being carried on. We know that human beings have some form of intuitions, it also proven in some situations animals also show intuitive characteristics, and here we are... concerned in artificial intuitions, a new era of AI. This paper is concerned with understanding intuitions in human, AI, and how it can be used in some real-life scenarios.

Keywords: Intuitions, human mind, conscious, sub conscious, unconscious, human intuitions, artificial intuitions.

1. Introduction

Understanding Intuitions

Intuition is an inevitable special function of human brain with intuitive characteristics and the ability to understand something instinctively without the need for conscious reasoning. Intuitions make you feel that you are right when you are confused. They become the evidence when an incident occurs. They help in decision making and are immediate cognition without the use of any rational processes.

Intuitions can be found in humans and animals as of now and is used in many problem-solving areas.[9]

Animal intuitions could be seen in the 2004 Indian Ocean earthquake and tsunami, when animals seemed to sense something was coming and fled to safe places.[1]

Intuition is an intelligent technique that seeks good solutions at uncertainty decision making. It has been used to refer to everything from a innovative hunch to a spiritual insight.[12]

2. Human Intuitions

2.1 Human Mind

The human mind is one of the best creations of the God. The human mind requires creative and unbiased cooperation amongst the humanities, social sciences and natural sciences. The mind is the collection of different comprehension process which generally includes consciousness, imagination, perception, thinking, judgment, language and memory, which is housed in the brain. It is usually defined as the faculty of an entity's thoughts and awareness. Information is registered in the brain so as to regulate the interactions with the surroundings.

2.2 Freud's model of the human mind

According to the Freud's Model of the Human Mind, there can be different levels of awareness of mind.They are the conscious, unconscious, and subconscious.[2]

Freud's Conscious Mind:

Consciousness can be as having an awareness and understanding of something.

The functions that the capabilities of the conscious mind can be:
-Its ability to direct your focus.
1. -Its ability to imagine that which is not real

Conscious Mind control or restrain the thoughts, memories, feelings, and wishes of which we are aware at any given moment, those actions are within our awareness. They are rational and require efforts. This is the aspect of our mental processing that we can think and speak about it rationally.

Freud's Subconscious Mind

Subconscious mind of human stores all the recent memories that are needed to be recalled quickly, for example the name of the person you met recently or your mobile number etc.

Subconscious Mind is the one in which we are unaware of our surroundings, it is hidden, implicit and works faster. It is subjective. It does not think or reason independently; it simply executes the commands it receives from your conscious mind.

Freud's Unconscious Mind

The unconscious mind is place of mind where all of the memories and past experiences reside. These are those memories that have been oppressed through trauma and those that have simply been consciously forgotten and no longer important to us (automatic thoughts).

Intuition is when you have a feeling or thought about something, but you don't know why you feel that way.

So, intuition can be thought as a function of unconscious mind, which you don't control

Intuitions can also be based on past experiences. Human intuitions are likely to result in enhance accuracy.

When we are asleep, the subconscious part of the brain may continue to try solving those problems that our conscious minds have failed to solve.[4]

Most people who have competed with a crossword clue know that sometimes they have found the answer easily after sleeping on the problem.

It is said that the great mathematician Srinivas Ramanujan has discovers pi in his dreams. In fact, many scientific discoveries have been made in dreams. For example, discovery of periodic table by Dmitri Mendeleev, Discovery of the Structure of Benzene and Aromatic Chemistry.[5]
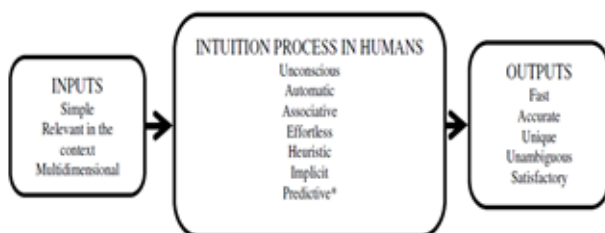
2.3 Process of Human Intuitions

Figure 1: In the human Intuition, we have ordered the process in three stages, as in machines INPUTS, PROCESS and OUTPUT

The above diagram has been taken from the "Analysis of human Intuition towards artificial intuitions synthesis for robotics, Octavio Diaz-Hernandez1 and Victor J. Gonzalez-Villela2[6], it describes process of intuition as a three-phase process of input, process and output.

The inputs are simple, relevant in context. The process of human intuition as described by Octavio Diaz-Hernandez1 and Victor J. Gonzalez-Villela2 consists of unconscious, automatic, heuristic, implicit and predictive components. The output may be unique and satisfactory results.

2.4 Limitations of Human Intuitions

1. Intuitions can be out of fear, in some situations.
It may result in a negative way.
2. Result of intuition may be dependent on the level of commitment towards a particular thing.

3. Artificial Intuitions

Artificial Intuition is the conscious information processing within the mind of an Artificial Machines such as Robots. they are programmed as low-cost computational algorithms as that's why they are usually based on the micro-intuitions. It gives the accuracy in the results unlike in Human Intuitions.

Artificial Intuitions can be programmed using Artificial Intelligence. It is potentially applicable to any artificial system. Artificial Intuition can be used in machines, especially in robots. And it focuses on the best responses produced by intuition, in order to augment accuracy in robots.

Artificial Intuitions are programmed as an expert system programming with low computational process having algorithms based on the micro intuitions.

Artificial Intuition is defined as an automatic process, which does not search rational alternatives. It is a straight forward process and mainly focuses in providing responses without the iterative search of solutions for a given problem. Usually the feedback is needed by the machine that controls the processes. If the action control was right we have positive feedback, but with the Artificial Intuitions, the answer is assumed to be correct and hence no further feedback is implemented, in the sense that there is no self-evaluation. These intuitions are supposed to be true always.

By defining the predictive functions in the Algorithms, the Artificial Intuitions gives the most probable and unique answer to any problem, the solution super-fast as soon as the inputs are received, hence the solution is accurate and unambiguous.
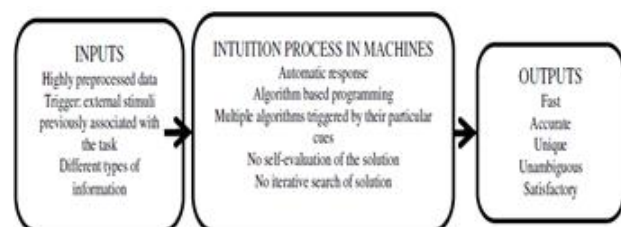

Figure 2: In the Artificial Intuition, there are three parts to be considered. As in any machine: INPUTS, PROCESS, and OUTPUTS.

The above diagram has been taken from "Analysis of human

Intuition towards artificial intuitions synthesis for robotics, Octavio Diaz-Hernandez1 and Victor J. Gonzalez-Villela2[6], it describes process of intuition as a three-phase process of input, process and output.

It shows the artificial intuition as the typical concept of input, processing and output in computer.

The input part consists of highly pre-processed data and knowledge. It consists of different type of information.

Here the output is always precise, factual, detailed, specific in nature.

Artificial Intuitions are trustable as we are gradually trusting "artificial" machines, smart phones, self-driving cars, skin cancer recognizing apps, health measuring apps, robots to collaborate with, whenever we have acquired enough proof that they are trustable, consciously or unconsciously.

4. Tabular Comparison between human and artificial intuition

S. No.	Basis of comparison	Human Intuitions	Artificial Intuitions
1.	Source of the Knowledge Acquisition	Knowledge is obtained by some biological being without proof of conscious reasoning.	Knowledge is obtained by a man-made learning system without proof of conscious reasoning.
2.	Biased or not	Human intuitions are not always true	Artificial intuitions are Assumed to be true always (less biased)
3.	Speed of execution	Slower	Faster
4.	Accuracy	Less	More
5.	Factors that may influence the result	Social interactions, thinking process may be the factors of intuitions in humans	No such concept inartificial intuitions.

5. Applications

AI is one of the fascinating and booming technologies of computer science which has created a new revolution in the world by making intelligent machines.

It holds the capability to make a machine work like a human being.

Artificial intuition can be seen as new concept in AI, which will solve the complex problems of humans in efficient way in various fields like, health care, finance, engineering, agriculture, civil engineering.

5.1 Application of artificial intuitions in diiferent domains

5.1.1 Civil Engineering

Civil engineering is an branch of engineering which deals with the planning, designing, maintenance of the public and private buildings, bridges, canals and dams etc.

Automation is significant. The use of artificial intuition, along with various other technologies, may improve production.

Architects and engineers continuously look for ways to make their work efficiently and faster.

The use of artificial intuition can result in more efficient design and maintenance of the required project.

Figure 3: Combining the artificial intuition with manual planning will result in more efficient projects in civil engineering.

The concept of artificial intuition can be implemented into robots, which will help the civil engineers in planning, designing and constructing the projects more efficiently by giving a virtual visualization the required project.

The Robot can be taken into the field of construction where with the help of vision, perception, sensors it will view the complete field and it will intuit the results in the form of data like how effectively construction can take place in the field,

Its costs, time, materials, cements, types of soils, and every small details could be intuited by the robot and a virtual visualization can be given to the concerned person, it can also intuit the number of days it will take to complete the construction, and how productively it can be done.

Artificial intuitions will achieve a great progress in technology in number of domains, construction is undoubtedly one of the fields that begin to embrace robotic Intuition. Robotics can bring desirable future for people working in construction.

Hence this will be economical, time saver, efficient, securable, higher precision during construction process. As the technology will grow progressively the use of robotic intuitions will become more prominent and will highly be used, and the construction project management processes will become much more efficient.

5.1.2 Agriculture

Agriculture is one of the significant and economic activities and is important for sustaining livelihoods, securing food production and providing income. It is an activity that is dependent on the environment and involves the use of ecosystem goods and services and environmental resources such as land, soil, water, and energy.[7] The field of artificial intelligence with its meticulous learning capabilities have become a key technique for solving different types of agriculture related problems.[8]

Artificial Intelligence is holding different domains and regions in order to boost up its efficiency, productivity and challenges. Its solutions are collaborating to overcome the conventional challenges in all fields. Similarly Artificial Intuitions in agriculture will help and support farmers to improve the efficiency, growth and reduce environment adverse impacts. It will help in controlling and managing the unwanted natural condition and also how fruitfully you can grow up the crops.

As agriculture sector is highly dependent on the climatic conditions which are often unpredictable so the use of artificial intuitions is advantageous in it.
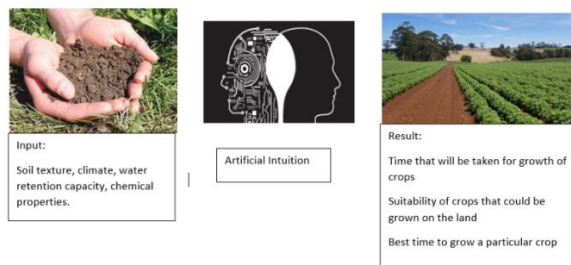

Figure 4: Providing soil quality and chemical properties as input can give the estimated time taken to crops to grow.

But when comes to the Artificial Intuitions in the field of agriculture, the robot is taken to the Agricultural field, where it views the field with the help of Vision, Perception. It is able to intuit by looking at the field that what will be the efficient piece of land for the agriculture so that it will be cost effective, than what all types of soil will suits the best in it, how much time the seeds will take to grow the respective fruits or vegetables and what all measures should be kept in mind in order to produce the crop in an efficient manner. It will improve the process and productivity, hence strengthened the agro-based business to run in a smooth and productive manner. The crop management practices can be improved by automated machine adjustments for pest or any disease identification and also for the weather forecasting thus it is indeed a great help for many tech businesses by investing in the algorithms which are becoming favorable in agriculture. Hence they will have potential to solve the different types of challenges that farmers faces during the crop production due to various climatic variations, unwanted weeds that grow in between crops, also an infestation of pests that reduces the yields.

6. Conclusion

Artificial intelligence has excelled in its field from the time it has come into the computer science field. And will remain a booming technology in upcoming many years. This paper shows what intuition is in general and how the concept of AI can be used significantly and efficiently in real life domains. There is no doubt that AI is now dominating the whole IT industry. But like the layers in an onion we can still expect to see still many more concepts in this field. Artificial Intuition may be one of them. For artificial Intuition to evolve completely, we may need more technologies which we can expect to see in future. Thus we can say that artificial intuition may require some more time to make its place in the industry as many more researches are still to be done in this field.

7. Acknowledgment

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