Embedding Emotions & Intelligence-Artificial Intelligence

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Abstract- **This research paper is presenting a new aspect of artificial intelligence. Discussing it in an all new frame of reference.**
Numerous technologies and attempts are made to make artificial intelligence, those technologies include neural network (neural computing), generic computing (evolutionary computing), soft computing etc.
This paper discusses history of artificial intelligence, its meaning, and, evolution. Implementation of these technologies with artificial intelligence thus adds to power.

Index Terms- Neural networks (neural computing), generic computing, intelligence, emotions and soft computing.

1. INTRODUCTION

AI(artificial intelligence) is machine intelligence i.e intelligence which is exhibited by machines or any software created by humans in order to implicate humanlike intelligence.
AI also studies the need and goals of creating intelligence.
Majorly defined as:
Study and design of intelligent agents.
By intelligent agents it means, the system that presents its environment and optimize the chances of success of actions.
AI is highly technical and divided into several subfields.
Some subfields focus on specific problems and others focus on one of the several possible approaches.
The central problems (or goals) of artificial intelligence research include reasoning, knowledge, planning, (earning, natural language processing communication), perception and ability to move and manipulate objects.

2. DEFINITION OF ARTIFICIAL INTELLIGENCE

The meaning of word intelligence and even more, artificial intelligence is of great confusion because it is discussed so much that leads to several discrepancies.
It is defined as:
- Development of machines or software able to exhibit human-like thinking or thought process such as learning, intelligence, self-correction and reasoning.
- Artificial intelligence is defined as, the extension of human intelligence.
- It can also be defined as, study and implementation of techniques and programming tricks more efficiently.

These are the general definition of artificial intelligence.
some other definitions are:
Systems that think like humans
- Systems that act like humans
- System that think rationally
- System that act rationally.

3. LITERATURE SURVEY

Looking back in the history of Artificial intelligence, we found Thinking machines appear in Greek myths, such as Talos of Create, which is a bronze robot of Hephaestus.
Idea of Research on the field of Artificial intelligence was done at a conference on the campus of Dartmouth College in 1956.
All the attendees wrote programs that were extremely astonishing and efficiently solve the algebra problem, logic theorems and English speaking as well.
On 11th may, 1997, Deep Blue became the first computer chess- playing system to beat the world chess champion, Gary Kasparov.

3.1 THE TURING TEST

Alan Turing was a great scientist, who did many inventions and research in the field of machines and gave the concept of Turing machines. He explained the philosophy of Artificial intelligence, proposed Alan Turing test.

His main concern was the question "can a machine think?" and began the discussion that became the philosophy of Artificial intelligence.

Thinking can't be defined or measured so here, thinking is tested in two terms by the philosophers:

1. Intelligence
2. Consciousness.

Turing then gave a convention which is known as Turing's polite convention:

It states that we need not to decide whether a machine can think or not. What we should decide is that can a machine act as intelligently as a human being.

Turing himself described the test as follows:

*   It is played with three people:
    *   A man(A),
    *   A woman(B), and ,
    *   An interrogator(C).
*   The interrogator stays in the room apart from the other two. The object of game for the interrogator is to determine which of the other two the man is and which is woman.
*   He knows them by labels X and Y and at the end of game he says either "X is aA and Y is B" or "X is B" and "Y is A".

4. MACHINE CONSCIOUSNESS, SENTIENCE AND MIND

4.1 NEURAL COMPUTING NETWORKS:

Neural network is related to neuron and its connection with computing and network.

Talking about machines and neurons , we can think of artificial machines or software that are provided with intelligence which is directly related to thinking, analysing, correcting and evaluating. All these characteristics are achieved in humans with the help of neurons only. so the question arise is how to introduce this concept in robots?

This can be achieved through ANN i.e. Artificial Neural Network.

ANN is a computational paradigm that differs substantially from those based on standard Von Neumann architecture.

ANN is implemented in a way same as that of biological neural networks.

The Von Neumann computer was originally developed for "heavy duty" numerical computing but has later also turned out to be profitable for data handling, word processing and such like. However when it comes to matching the vertebrate brain in terms of performing "human" tasks it has very strong limitations.

There are therefore strong reasons to design an architecture and algorithm that shows more resemblance with that of the vertebrate brain.
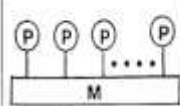

Table 2.1: Comparison of characteristics of neural networks and conventional computers.

ANN is designed to copy biological neural network:
Design:

It consists of a computational unit called neuron, connected by means of weighted interconnections. The weight of interconnection is a number that express the strength of the associated interconnection. Key attribute of ANN is the capability to learn.

This can be done by adjusting the weights of interconnections according to some applied learning algorithms.

4.2 SOFT COMPUTING

Soft computing is the newest form of the combination of field fuzzy logic Neuro computing /Neural networks, Evolutionary or generic computing and Probabilistic Computing into one multidisciplinary system. The main goal of soft Computing is to develop intelligent machines. Soft

computing methods reveals the high principles of technology, algorithms and tools in bioinformatics.

This is used enthusiastically for parallel genome sequencing, fast sequence comparison, search in databases, mechanical gene identification, efficient modelling and storage of mixed data etc.

5. ROBOTICS AND ARTIFICIAL INTELLIGENCE:

Several utilization of intelligent systems and robotics could extremely affect the well being of our society. The way we live, learn, work and earn.

5.1 ROBOTICS AND INTELLIGENT SYSTEMS IN SUPPORT OF SOCIETY.

Robotics for rescue

Natural and man-made disasters may occur at any time, creating a great loss to lives and property. They lead to special requirements for effective conjunction of human and robotics systems. Sometimes, it may be the case that the disaster location is too dangerous for human exploration or it may be the possibility that it is out of reach. In these conditions we require machines that are intelligent enough to tackle the worst situation with intelligence and ease where no living can reach and human rescue effort can also lead to unnecessary loss of life. There are several organizations that are actively designing robots for this purpose. These are small rescue robots that can carry human-sized payload. Small in size and large in capacity. This helps in achieving the task in short span of time and with no extra lives on stake most importantly with less human efforts.

Rescue robots are equipped with specialized sensors that can detect land, air, sounds, body heat or coloured clothing that is proved very helpful in determining or distinguishing between a living and non- living being.

6. INTELLIGENCE, EMOTIONS AND GENETICS COMPUTING

"Emotions and Intelligence are co-related phenomenon. And hence emotions must be taken into consideration for designing true intelligent agent."

Like in humans, a child inherits some or all efficacy of problem solving of its parents.

Now, as we are dealing with intelligence in machines using artificial intelligence, the matter of contention is how to clend the same in artificial agents.

As this problem arose, genes transfer technique came into discussion.

Genes transfer: (after mutation) as generic computing, genetics based approach is used to enroot new agent matching the intelligence of parent agent.

This is how the issue of deriving nature or intelligence among machines (artificial agents) is resolved.

7. CONCLUSION

From this research paper, we can clearly conclude that artificial intelligence is based on many scientific and bioinformatics technologies . various inventions and stable formulas lead to development of intelligent human like machines with intelligence, emotions, neural computed much efficiently programmed that can be helpful to reduce work load on human being and may perform tough and heavy work with great ease.

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