

STUDY OF LEARNING ABILITY OF INTELLIGENT MACHINES IN COMPARISON TO HUMAN

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ABSTRACT

This is the study of the learning ability of the intelligent machines from the surroundings in contrast to human's learning ability which is far superior from them(machines). This study includes the study of machines in form of programs (for some), where it is inferred that a machine is not as adaptable to the change as human being, as an instance I'd like to take "crossword puzzler & solver-I" and myself (author). Where it was found that the 'adaptability for the change in surroundings' of human being is far more better than the machine. When the puzzler(2) coined "RAPIER'S COUSIN", and the answer is to be fit in the space of four letters, the solver(2) came up with the answer "EPEE", same by

human. Then puzzler(2) came up with "CEREMONIAL SWORD", and the answer is to be fit in the space of five letters, the solve(2) came up with no answer, but the human is.

I. INTRODUCTION

The hottest topic in the area of AI is machine learning. One of the most heard criticisms of AI is that machines (computers) cannot be called intelligent until they are able to learn to do new things and to adopt to new situations, rather than simply doing as they are told to do. There can be little question that the ability to adapt to new surroundings and to solve new problems is an important characteristic of intelligent entities. Ada Augusta, one of the earliest philosophers of computing, quoted that "Analytical Engine has no pretensions whatever to originate anything. It can do whatever we know how to order it to perform." This remark has been interpreted by several AI critics saying that computers cannot learn. Simon has proposed that

learning denotes “changes in the system that are adaptive in the sense that they enable the system to do the same task(s) drawn from the same population more efficiently and more effectively the next time. ”

The learning shows that there exists adaptability and understanding in order to made this(learning) possible. On comparison to human being which are more adaptable to the change in surroundings and work accordingly, machines are far less adaptable. The coming section (2) will describe the comparison.

II. RELATED WORK

A. THE PROBLEM

ACROSS

- A1. Word in discount store names (3)
- A2. Set right gloss (5)
- A3. Rewarded employee (5)
- A4. Brazilian novelist Jorge ____ (5)
- A5. Number’s position mathematically (5)
- A6. One known for great service (4)

DOWN

- D1. Tetley competitor (6)
- D2. Infinitesimal (6)
- D3. Long sail (6)
- D4. Zenith’s opposite (5)
- D5. Spartan serf (5)

Here the puzzler, coins the puzzles from all fields viz., society, history, mathematics, sports, industrial, general knowledge. The solved crossword puzzle done by human being is done by the aid of past experience, whereas solver stuck (hanged) many times. When the search is conducted, it was found that solver needs a machine like mainframe type[1].

B. THE SOLUTION

The study includes the Intelligent machine (crossword puzzler & solver-I), human being(the author) and a problem in form of tabular box having space for letters across(row-wise) and down(column-wise).

A/D	1	2	3	4	5
1	S	A	V	+	H
2	A	T	O	N	E
3	L	O	Y	A	L
4	A	M	A	D	O
5	D	I	G	I	T
6	A	C	E	R	+

D=DOWN, A=ACROSS

The Algorithm for “Crossword Puzzler & Solver-I”

- 1 . Check the meaning of the word(coined by the Puzzler) in dictionary
- 2 . Find the exact solution i.e. word of required no. of letters
- 3 . Place the required word in the given space
- 4 . If no puzzle left then quit else search for new word.

C. THE COMPAIRISION

The given table produces contrast of visibility

CHANGE IN SURROUNDINGS	RESPONSE BY HUMAN	RESPONSE BY MACHINE
Change of subject	2 min.	Hanged
Possible solution(s)	1min.	Micro sec.
Exact solution(s)	10 sec.	Hanged

It is clear from the comparison that a machine when get result, respond back in a fraction of second, but far from adaptability of change.

III. CONCLUSION

This is find out while studying the learning ability of intelligent machine(Crossword Puzzler & solver-I) is far less as compared to human being.

A human retina has a size of about a centimeter square is half a millimeter thick

and is made up of 100 million **neurons**. Scientists say that the retina sends to the brain, particular patches of images indicating light intensity differences which are transported via the **optic nerve**, a million-fiber cable which reaches deep into the brain.

Overall, the retina seems to process about ten one-million-point images per second.

Because the 1,500 cubic centimeter human brain is about 100,000 times as large as the retina, by simple calculation, we can estimate **the processing power of a average brain to be about 100 million MIPS** (Million computer Instructions Per Second)

1999's fastest PC processor chip on the market was a 700 MHz pentium that did 4200 MIPS. By simple calculation, we can see that we would need at least 24,000 of these processors in a system to match up to the total speed of the brain !! (Which means the **brain is like a 168,0000 MHz Pentium computer**).

So who has more processing power ?
By estimation, the brain has about 100

million MIPS worth of processing power while recent super-computers only has a few million MIPS worth in processor speed. That said, the brain is still the winner in the race. **the average brain can hold about 100 million megabytes of memory !!![1]**

Take every computer in the world in 2007 and add their processing power that will equal to the total capacity of a human brain.[2]

That only leaves an estimated 732,544 processors left to add in to equal the **processing power** of 1 **human brain**--a task IBM-Jason Kennedy

REFERENCES

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[2]. ARS TECHINICA, John Timmer

[3]. "Editorial Board of the Kluwer Journal, Machine Learning: Resignation Letter". *SIGIR Forum* 35 (2). 2001