Make Machine Humanlike Intelligence

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Abstract— Artificial intelligence is facing an insurmountable difficulty: it can't make machine humanlike intelligence. This paper presents a new kind of intelligence, called as Ubit intelligence. This paper explains what is human intelligence; why AI can't make machine humanlike intelligence; then introduces Ubit intelligence by experiment examples; make machine memorize knowledge from learning, understand the memorized knowledge in machine, think the memorized knowledge in machine like human without AI algorithm, and explains how it can make machine humanlike intelligence. This paper also introduces the foundation of Ubit Intelligence: Ubit Semantic Computing, a total new theory. The advantages of Ubit intelligence listed show that Ubit intelligence is far beyond artificial intelligence.

Keywords— artificial intelligence, Ubit intelligence, neural network, human intelligence, machine learning, machine thinking, humanlike intelligence

I. NEURAL NETWORK MAKING MACHINE NOHUMANLIKE INTELIIGENCE

Human can memorize knowledge from learning; and can think based on the memorized knowledge.

However, "The DeepMind AI, a so-called neural network made up of layered algorithms, wasn't programmed with any knowledge"

"they have absolutely no common sense." [1]

"All it could do was follow the pattern." [1]

" truly humanlike intelligence isn't just pattern recognition." [1]

" These deep-learning systems don't know how to integrate abstract knowledge," [1]

" deep learning might never get past its current limitations." [1]

Knowledge is the foundation of think; however, The DeepMind AI, or Neural network can't make machine get knowledge from learning; therefore, they can't make machine think; and can't make machine humanlike intelligence.

II. HUMAN INTELIIGENCE

There is a famous story. One day, in a market, a boy finds a strange couplet in a been sprout store; the couplet consists of 18 characters, all are same character.

The left line: 长长长长长长长

The right line: 长长长长长长长

The top line: 长长长长

The character is a polyphone; as read "chang ", the meaning is long, as read "zhang", the meaning is to grow longer.

The boy doesn't know how to read, nor understand the meaning at all.

In this time, this couplet isn't the boy's knowledge.

After learning, he knows the couplet should read as:

The left line read: "chang zhang chang zhang chang chang zhang"

The right line read: "zhang chang zhang chang zhang zhang chang"

The top line read: "zhang chang chang zhang"

He also understands the meaning of the couplet is:

Often grow, often grow, often and often grow;

Grow longer, grow longer, grow and grow longer

Grow loner and often grow.

This couplet is a good wish to the sprout store.

There are four words in the couplet:

长长: read as chang zhang, meaning: often grow

长长: read as zhang chang, meaning: grow longer

长长长: read as chang chang zhang, meaning: often and often grow

长长长: read as zhang zhang chang, meaning: grow and grow longer

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Before learning, the boy only knows the characters without any meaning; the couplet isn't the boy's knowledge. After learning, he knows words, he understands how to read, understand the meaning; and memorized this couplet in his brain; then the couplet becomes the boy's knowledge.

The knowledge is stored in his brain as following:

Memorized word by word in his brain,

Each word consists of its characters;

Each word associates its attribution, such as: associates its speech, its meaning.

And all this information about this couplet is memorized in his brain.

According to this information in his brain; he can read the couplet correctly; and he can think the couplet without any AI algorithm; even he doesn't know what is algorithm.

The number of characters is limited, but the number of words is nearly unlimited.

It is reasonable to assume that the container of words in human brain is similar to code, the number of codes must be nearly unlimited in order to store nearly unlimited words, and the length of codes is different in order to store deterrent length of words.

There are about 100 billion neurons in human brain, the active times of each neuron is about 10^1000000, therefore, the codes in human brain can be nearly unlimited. Human brain can distinguish each code, no matter how long it is. The codes are compatible, distinguishable in human brain.

Human intelligence is learned or trained, not instinctive. Human can memorize knowledge from learning; human understand the memorized knowledge; can think the knowledge stored in human brain, for example: search, reasoning, associate one to another.

Knowledge is information and understanding about a subject, a thing, an object, which a person has, a person stored in brain.

To a student, text is not knowledge; text is only a source to learn knowledge, only after learning, after understanding and memorized in his/her brain, the information can be called as knowledge. Knowledge is the foundation of think; a new born baby, without any knowledge, can't have thinking ability.

Intelligence is the ability to learn, understand, and think about things.

III. ARTIFICIAL INTELLIGENCE MAKING MACHINE NOHUMANLIKE INTELIIGENCE

There are two kind of AI, AI with learning stage and AI without learning stage.

AI with learning stage, such as The DeepMind AI, can't make machine humanlike intelligence.

AI without learning stage can neither make machine humanlike intelligence; we explain this by Chinese language comprehension AI.

Chinese word segmentation algorithm is the kernel of Chinese language comprehension AI, which can't get rid of the algorithm. Word segmentation algorithm is trying to march the word in the text by the words in library; therefore, Chinese language comprehension AI is also just pattern recognition.

For example, human can read the Chinese couplet above correctly; but Chinese language text to speech AI is impossible to read the Chinese couplet above correctly; it can read as following:

chang chang chang chang chang chang chang

chang chang chang chang chang chang chang

chang chang chang chang

It is nonsense.

Why Chinese language text to speech AI can't read the Chinese couplet above correctly?

There are four words in the couplet:

长长 (chang zhang)

长长 (zhang chang)

长长长 (chang chang zhang)

长长长 (zhang zhang chang)

It is impossible to make a word library to hold these four words.

It can't make 长长 read (chang zhang); and also read (zhang chang)

It can't make 长长长 read (chang chang zhang) and also read (zhang zhang chang)

It is no way to segment the sentence into words by Chinese word segmentation algorithm.

Chinese language comprehension AI has no learning stage; the couplet stored in machine is not as the couplet stored in human brain. The couplet only stored characters in the machine; no information about word, no information about word speech. It can't make machine store knowledge; can't make machine think like human. It is just pattern recognition.

In short: Chinese language comprehension AI is not humanlike intelligence.

IV. UBIT INTELLIGENCE MAKING MACHINE HUMANLIKE INTELIIGENCE

A lot of Ubit Intelligence experiments have been successfully done.

Experiments show that Ubit Intelligence is successfully applied in web; Ubit Intelligence has realized the scientist's dream; such as the Berners-Lee, Tim's dream "the objective of Semantic web is making the Web understandable not just by human but also machines. (not machine with artificial intelligence) With that, information exchange and sharing can be much more efficient." In 2017, the experiment demon is awarded as invention model by Internet society of China [2].

Experiments also show that Ubit Intelligence is successfully applied in Chinese language processing. Briefly, next only Ubit intelligence Chinese text to speech is introduced.

The experiment consists of two stages: machine learning stage and machine thinking stage.

Learning stage: there are two learning method, learning by a new kind of inputting method, and learning by transformation. Only learning by inputting method is introduced next.

Teach the machine what characters is a word, and make each word associates its speech of each word by inputting pinyin.

Here the inputting method is not only used to input characters, the most important is used to input word, input its speech, also associate word and its speech.

Experiment 1: read the couplet above [3]

The four words in the couplet are inputted as:

长长 inputted by (chang zhang) and the related word: 长长

长长 inputted by (zhang chang) and the related word: 长长

长长长 inputted by (chang zhang) and the related word: 长长长

长长长 inputted by (zhang zhang chang) and the related word: 长长长

The three lines of the couplet are inputted word by word as:

The left line: 长长长长长长长 inputted by (chang zhang) (chang zhang) (chang chang zhang)

The right line: 长长长长长长长 inputted by (zhang chang) (zhang chang) (zhang zhang chang)

The top line: 长长长长 inputted by (zhang chang) (chang zhang)

As inputting, the information about this couplet, the characters of each word and the association of word and its speech is stored in the machine.

Machine thinking stage: Reading the couplet by text to speech program of Ubit Intelligence

According to the information stored in the machine; machine can read the couplet correctly; can understand the meaning of the couplet without any AI algorithm.

The program scans the word sequence of the couplet line by line; distinguish each word in the sequence.

Because each word associates its speech; it retrieves the speech of each word, and pronounces voice; the correct voice is heard by the people.

First, machine understands the speech of each word,

Then the machine translates the speech to human, and make human understand.

The inputting part of the recorded experiment 1 video is omitted.

Experiment 2: read two sentences: "乒乓球拍卖完了，乒乓球拍卖完了。" [4]

The meaning of "乒乓球拍卖完了" is ambiguous,

If segmented as "乒乓球" "拍卖" "完" "了" The mmeaning of the sentence is:

The meaning is: Ping pong balls/auction/finished/already.

If segmented as "乒乓" "球拍" "卖" "完" "了"

The meaning is: Ping pong/ rackets/sell/finished/already.

Chinese language text to speech AI can't read the sentence correctly because it doesn't know how segmenting the sentences.

The experiment is trying to eliminate the ambiguity of "乒乓球拍卖完了，乒乓球拍卖完了。"

To make the first sentence meaning: "乒乓球" "拍卖" "完" "了" ","

To make the second sentence meaning: "乒乓" "球拍" "卖" "完" "了" "."

The learning stage of the experiment teaches the machine what characters is a word, and make each word associates its speech by inputting pinyin.

The first sentence is inputted by: pingpangqiu paimai wan le, and the related words: "乒乓球" "拍卖" "完" "了".

The second sentence is inputted by: pingpang qiupai mai wan le, and the related words: "乒乓" "球拍" "卖" "完" "了"

Thinking stage: Reading the two sentences by text to speech program of Ubit Intelligence.

The result of the experiment is as following:

The reading of the first sentence is: pingpangqiu paimai wan le

The meaning of the first sentence is: Ping pong balls/auction/finished/already.

The reading of the second sentence is: pingpang qiupai mai wan le,

The meaning is: Ping pong/ rackets/sell/finished/already.

The recorded experiment 2 video (inputting part omitted) reads one word by one word in order to understand word clearly.

There is no word segmentation algorithm, nor word library in Ubit intelligence program.

Ubit intelligence simulates human intelligence; and it is humanlike intelligence.

It is no way for Chinese language text to speech AI to segment the two same sentences into different words; otherwise, this contract each other.

V. THE FOUNDATION OF UBIT INTELLIGENCE

Ubit intelligence consists of two stages: machine learning stage and machine thinking stage. This is simulation of human Intelligence.

As learning, the characters of each word, the association of word to speech are stored in the machine.

There is a very difficult problem, which must be solved in order to simulate human Intelligence.

In human brain, the number of codes is nearly unlimited, and the length of codes is different. That is different length of codes can be distinguished by human brain; i.e. all codes in human brain are compatible.

But in machine, different length of codes in a code sequence is not distinguishable, the codes contradict each other, not compatible. To keep codes in a code sequence compatible; the length of codes must be equal, for example, Unicode is 2 byte long, or 4 byte long. 2 byte Unicode can't be put into 4 byte Unicode sequence. Therefore, the number of codes in any existed character code system is limited.

To make different length of codes in code sequence be distinguished and compatible seems impossible; this problem becomes the obstacles to realize humanlike intelligence.

Fortunately, an unusual paper: "Introduction to Ubit Semantic Computing", [5] published; the examining expert's comments: "This is truly novel", "this can potentially solve a number of significant problems" , "This is an excellent paper indeed." [6]

The paper introduces a totally new concept: Ubit, Ultra bit; the leftist bit of a byte is Ubit; some Ubit can form a Uframe, Ultra frame; which is used to form a byte group. One byte group relates a new kind of code, called Ucode, Ultra code. Different length of Ucodes in an Ucode sequence can be distinguished by Ubit; therefore, the length of Ucodes can be different in a Ucode sequence, and the number of Ucodes is unlimited. Ucode can be used to store words, and also can be used as pointers for association word and its attributions. An Ucode sequence can be distinguished by scanning the Ubit of the byte sequence. Different length of Ucodes in a Ucode sequence is compatible.

For the example above couplet:

In the learning stage, we put four words into four Ucodes:

长长, a four bye Ucode, and the Ucode associates its speech (chang zhang)

长长, a four bye Ucode, and the Ucode associates its speech (zhang chang)

长长长, a six bye Ucode, and the Ucode associates its speech (chang chang zhang)

长长长, a six bye Ucode, and the Ucode associates its speech (zhang zhang chang)

In the think stage, machine scans each Ubit of each byte, to distinguished each Ucode. Each Ucode contains the characters of each word, and associates the speech of each word.

Therefore, machine can retrieve the characters to display to human, pronounce the speech to human, make the content understandable to human.

Ubit Semantic Computing is the foundation of Ubit Intelligence.

VI. THE ADVANTAGES OF UBIT INTELLIGENCE OVER ARTIFICIAL INTELLIGENCE

First, because Ubit intelligence simulates human's learning and thinking stages, and can make the content semantics understandable to machine; then the machine can translate the meaning to human, and make human understandable; Ubit intelligence is humanlike intelligence.

Second, because Ubit intelligence has solved semantic ambiguity problems, such as speech and word ambiguous problems, Ubit intelligence is precise.

Third, because Ubit intelligence saves AI algorithm; Ubit intelligence program is extremely short; the memory space is very small; the efficiency greatly increased: the speed is very high; the cost of the learning and developing of Ubit intelligence program is saved extremely.

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A> The author in this paper introduces a new generation of semantic computing;
A> he has named it as Ubit Semantic Computing (USC); this can potentially
A> solve a number of significant problems. I very much liked this paper
A> and so recommend its acceptance (although, the work is not yet proven
A> to succeed). This is truly novel. The paper is 10 pages long and
A> the editors have allowed this paper to be 10 pages long in the book.
B> This is an excellent paper indeed. My recommendation is to accept without
B> hesitation. The write-up is a little weak and so it can still be improved.
B> The only suggestion that I have is for the authors to try to provide
B> a little more in-depth explanation about the architecture of USC (ie, Figure 14 and section VIII).