Is Artificial Neural Network Intelligent?

Wieslaw Pietruszkiewicz
wpietruszkiewicz@wi.zut.edu.pl
Szczecin Technical University

Akira Imada
akira@bstu.by
Brest State Technical University

Abstract

This is a paper re-edited from the paper written for the round table discussion in the 'International Conference on Neural Network and Artificial Intelligence 2010' for the purpose of breaking the ice. Thus the topic of this article is "What is intelligence?" when we talk about artificial intelligence specifically here by using artificial neural network. We try a speculation concerning if a machine intelligence by neural network could be as flexible as human intelligence or not.

1 Original Proposal

As far as its application to industry is concerned, the state of the art of machine intelligence reaches an impressive level nowadays, as those authors proudly claimed. However does intelligence of those what they call a intelligent machine has a *human-like intelligence*?

Once my friend, who worked with a world famous electric company as an engineer, told me, "It's amateurish," when I admired a food in a Chinese restaurant telling him, "It's really wonderful that they cook every time in a slightly different way whenever I order the same one, and every time it's delicious." He told me, "Real professional should cook exactly the same way every time."

Some of what they call an intelligent machine may indeed perform the given task much more efficiently, effectively, or precisely than human. However, we human are not usually very efficient, effective nor precise, but rather spontaneous, flexible, unpredictable, or even erroneous sometime.

What we expect when we address a *human-like intelligence* is, somewhat of a different behavior than the one as we behaved before, not exactly the same one, even when we come across a same situation again, while the state of the art may act differently in different situation but repeats the same action in a same situation.

Once Dreyfus (1965) wrote, *A little intelligence is not intelligence at all but stupidity. … Any program that does just one thing well is at best more like an idiot savant than like an intelligent man."*

Yes, an intelligent behaviors might differ even in a similar situations. Hence we now assume our goal is *'to make an agent behave differently even when it encounters the same situation as before.* That is, what we want is, a different action of the agents every time whenever the agents come across an identical situation.

The original paper was written by the 2nd author of this article following a proposition of the 1st author of this article
Footnotetext without footnote mark

However, this *always-different-action-in-a-similar-situation* could be easily implemented simply by using random numbers. So a *different-action-even-in-an-identical-situation* just a necessary condition at the best.

So let's our ultimate goal being *A spontaneous, flexible or unpredictable behavior should be done consciously.* But is it possible?

2 Comment from the floor

intelligence vs. smart

one possible definition of machine intelligence might be correcting a previous mistake when a similar situation is encountered.

3 Response by Wieslow

Reference

Dreyfus, H. L. (1965) "Alchemy and Artificial Intelligence." Technical Paper/Notes published by RAND Corporation. Reprinted in Artificial Intelligence: Critical Concepts, Vol. 3. Published in 2000.