

# Applying ANNs to Organic Agriculture

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## Abstract

Artificial neuron networks have natural structure for machine learning and applying the methods of philosophy behind quantum physics, which can be summarized into three points, realness, oneness and interaction, artificial neuron networks can learn to know objectives in real world, which could be anything material no matter a proton or an apple, with a bijection between the objective and its pattern in the artificial neural networks, both the objective and its pattern must be one respectively, therefore it can know things without any mistake and even can't be cheated by a fake objective which pretends to be the real one. Such artificial neural networks combined with artificial intelligence including machine learning, we could make robot peasant to do elaborate works in organic farming, to manipulate which is simple as doing electronic sport, and produce more organic food without lowering their quality.

**Keywords:** Artificial neural network, Machine learning, Pattern, Bijection, Organic Agriculture

## Artificial Neural Network

Artificial neural network is counterpart to artificial intelligence that directly mimics human's brain to function intelligence, it seems artificial neural network is the natural structure for machine learning, it has natural learning ability that performs much better than machine learning, or it is true machine learning, if saying artificial intelligence is human's left brain, or the part in brain that is in charge of abstract and logical thinking, artificial neural network is the other part that is in charge of graphic and perceptual thinking.

Artificial neural network mimics human's brain, massive artificial neural cells connects and form network, it uses the state of each artificial neural cell and the connection strength between cells to store and process information, the information exists in form of pattern in an artificial neural network. Artificial neural network could learn to know things in real world, its natural ability to learn is much better than machine learning based on artificial intelligence systems, how artificial neuron network could learn to know the real world actually is how human knows the real world, we just never think about how we know the world, why the things are that we know, especially the things or people we know through

our electronic media, how can we be sure the people or things we saw definitely are that they are and not lying us?

We know the world by using interactions we can receive from the objectives we want to know, even watching is also interaction, electromagnetic interactions, electromagnetic waves which are also known as photons, photon or wave are just different states of one material, and the possibility in the interaction by which wave, or particle was converted to the other makes new material never existed before. Artificial neural network can know the objective by interacting with the objective, for not influencing the objective while knowing it, we choose only to receive interactions from the objective, that is to be one with the surrounding environment of the objective. No matter what interactions the artificial neural network is using, they are just media, the objective can be known by an artificial neural network as long as the interactions from the objective to the artificial neural network are used by the artificial neural network, there could be projection of the objective which becomes pattern into the artificial neural network. Since the artificial neural network is fixed, if the objective is different, then its projection into the artificial neural network must also be different, when and only when it is identical objective can have identical projection in the same artificial neural network, the objective can

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be a kind of material, or creatures, such as proton and apple, and the interaction can be any interaction that the objective has with the environment by itself, such as  $\alpha$  particles, photons, it is we are using electromagnetic interaction to know the world, by this interaction, an apple can have a projection into the artificial neural network via such interactions, and because the artificial neural network and the objective are unique, the projection of an apple must be unique in the artificial neural network, and this information would exist in form of pattern in the artificial neural network, this pattern maps the objective apple. If this artificial neural network is supervised before or after a learning, then it could know what an "apple" is if it was trained to use this pattern to map apple, in future this artificial neural network would always know whether the objective which have projection into it is an apple.

However, there is a problem for knowing things by an artificial neural network in such way, could such a projection of the objective be something else pretended, therefore our artificial neural networks may be cheated? Here we must introduce a secret truth about the philosophy behind quantum physics.

First, since material is what does exist, and what does exist can only evolve with time and never create something never existed before, all would be deterministic, hence material can absolutely never be created by material, only spirit, which is probability in quantum physics, can be what created material, and it indeed can create material, among multiple and even countless possibilities which one it will choose, this is something new never existed before it was created, then this is just what material essentially is, it exists, before that it doesn't exist, is objectively unpredictable, the definition of material is what does exist. Second, since material is spirit, an objective must be one if it exists, all parts of it must be one which is a new thing different from all parts which it consists of, while it is one with all parts it consists of, the interactions between them make them be one and this is different, if an objective is real it must be one, this one is different from all parts it consists of and this is more, when and only this one new different thing exists can the objective be real, and this new one is the objective itself. Third, if this objective exists in this world, it must interact with an observer, otherwise we can consider this objective doesn't exist in this world.

Applying these, since an objective is one, its pattern in the artificial neural network also must be one, this can be proved: since the objective is one, its pattern in the artificial neural network are also one with this objective, therefore its pattern also is one by itself in the artificial neural network, all small patterns that this pattern consists of interact with each other to be one, the machine can know this since all small patterns that the pattern consists of are one. Then, the pattern maps the objective in the real world, an objective could be a kind of material no matter in macroscopic or microscopic world, such as apple and proton, and as an objective may consist of many and even countless small parts, therefore

the pattern may also reflect the constitute of this objective, a big pattern may consist of many and even countless small patterns but they are one and this one is something new different from all small patterns it consists of, this new big pattern maps the objective we want the machine to learn to know, and all small patterns maps all small parts which this objective consists of, the relations between their patterns maps the relations between this objective and all small parts it consists of, such relation is their interactions, it is interaction that makes them to be one and accounts for why more is different. Now suppose an objective names "A", in future as long as an objective has such pattern when it was observed by the machine, then this objective must be same "A" objective and it can't be fake, a fake objective can't be identical with the original objective, therefore can't have identical projection which is the pattern in artificial neural networks with the original objective, fake one is impossible to be one when it pretends to be the real one, therefore it doesn't have same one projection into the artificial neural network as the real one would, it could be many parts that look like the real one, but they would not be one which is identical with the real one, only a real one can be identical with the real one.<sup>1</sup>

With these methods, an objective can have projection into the artificial neural networks via the interactions that the artificial neural networks receives from it, the projection becomes pattern inside the artificial neural network and each pattern maps one objective. If an objective does exist, it must be one, this one will be reflected as a pattern, which also must be one, in the artificial neural network, and this pattern can also consist of many and even countless small patterns which are projections of all small parts which this objective consists of, but they becomes one which is different from all of them and is the objective itself. One pattern maps one objective, different objective has different pattern, both the pattern and the objective it maps are one respectively, therefore when and only when identical objective has identical pattern, every map between the objectives and their patterns in artificial neural networks is of bijection, and the machine can know the objectives after it learned the maps between the objectives and their patterns in the artificial neural networks. An objective can be a kind of material and even creatures, such as proton and apple, the machine can learn to know things by learning the maps between the objectives and their patterns projected into the artificial neural networks, when and only when it is identical objective, which is one, can have identical pattern, which also is one, in the artificial neural network with the previous objective the machine learned, and such knowing of the machine is not be able to get cheated since the maps are of bijection, fake one is not identical with the real one.<sup>1</sup>

With such artificial neural networks combined with artificial intelligence, we can make robots that can be trained to do agricultural works especially organic farming. Organic farming requests more elaborate works since one can't simply use pesticides, chemical fertilizers, or herbicides to kill the harmful insects, fertilize the soil

and eliminate weeds that are adverse to the growth of the crops. Especially to replace herbicides, the weeds may be converted to fertilizers and pesticides, it is good to the quality of soil when there are moderate weeds.

### Robot peasants with ANNs and AI

The works in organic agriculture are more elaborate than current agriculture, for example, there are several steps to produce organic tomato:

- a. Cleaning the farmland including pulling out the plants of last year,
- b. Digging holes that matches the infant tomato plants with moderate density, then put the tomato plants inside the hole, with their roots downside, put soil onto their roots while leaving their leaves above the ground.
- c. As the plants grow up, it needs to use strings with clamps which fit their stem to hang them up, especially to hang their flowers or fruits up in higher places. Now it is also time for bumblebees to come to spread pollens among flowers.
- d. Picking the fruits when they are mature and then loop the steps above when it comes to the next year.

To do these works, a robot peasant needs to learn to know what a tomato is as well as what a tomato plant is, this needs machine learning based on artificial neural networks instead of that on artificial intelligence, so that it can better know the objectives in real world. If the robot use eyesight similar to that of human (similar because maybe there are better wavelengths of electromagnetic waves for it to use to know the objectives), it can know the objectives at any distances after it learned the objectives at any one distance, because different distances of the eyesight could be of different layers of the artificial neural network, different layers are interacting to be one artificial neural network, therefore when the objective is known by the artificial neural network at one distance, all layers of all distances will get its pattern, which is one, in that layer, and the distance of the objective can also be determined by which layer of the artificial neural network the pattern was input, similar as the objective at different directions and angles, the direction and angle of an objective can also be determined. And if using two such eyes for the machine to know the objective, the two eyes can be thought as one and how an objective can be known and learned by the machine is same as that of one eye, one objective must have one unique pattern which is also one into the artificial neural networks, this pattern is like the interference of the two patterns of using only each eye to know the objective, and here the two patterns must interfere as it is of one objective, the two

patterns must be one since the objective is one. And there are also more complex conditions such as the objective was known by the machine through different media such as glass, mirror and even image on a paper, but it is still possible for the machine to learn to know where the objective really is with its angle by which layer of the artificial neural networks the pattern, which is one, of the objective was input, the one pattern of the objective must be in different layer of the artificial neural networks if it was at different position, angle or even through different media, and machine also need be able to know through what media the objective was known, so that the machine wouldn't go to break a glass between the objective and itself when it sees the objective through a glass. The one pattern of an objective into an artificial neuron network will always be same in each layer of the network no matter from which layer it was input.

After a robot peasant learned what tomato as well as tomato plant and stem, flower etc. every major part thereon, knowing where it is and what is between the robot and the target objectives, it needs reinforcement learning to train the robot to do all the works to produce tomato, the robot should learn to know the best distance and direction etc., i.e., the best relative position of the target objective to the robot, for it to work, then should learn to know how to get to this position relative to the target objective in right way, at this point, AI of Tesla should be mature to do such task, self-driving car of Tesla can already make no mistake so that it can work on the road. Finally, the robot should learn to know how to work in right way, thereby it can complete all the procedures to produce tomato by manipulation from human which is simple as electronic sport.<sup>2</sup>

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### Conflicts of Interest

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