

Time evaluation and concrete sylvan stability by using neural network algorithm

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Abstract: Constantly in developing countries, development civil had been significant and effective in country's development. Based on this fact and rapid development necessity in country especially in plan and civil field, time would be main scale of project success beside quality control, stability, resistance in these kinds of plan schemes. Therefore, manager's access to a method along with accurate and correct time estimation and stability control and factor resistance help them to consider appropriate plan for various resource. This matter as the most strategic collection of storage cellars is so crucial in the field of projects of wheat concrete sylvan because delay at this sylvan's plan projects accomplishment and also instability would disorder balance and include high price. Available scheme has studied time evaluation and concrete sylvan stability by using neural network that layers models would be presented in order to estimate time duration and real stability of concrete sylvan after introducing neural network. [Kiani, Mahmoud. **Time evaluation and concrete sylvan stability by using neural network algorithm**. *J Am Sci* 2025;21(11):14-17]. ISSN 1545-1003 (print); ISSN 2375-7264 (online). <http://www.jofamericanscience.org>. 02 doi:[10.7537/marsjas211125.02](https://doi.org/10.7537/marsjas211125.02)

Keyword: concrete sylvan; stability; neural network

1- Introduction

Civil projects presentation and accomplishment that is specified beforehand and also time duration and high stability are specified, would be more successful than other projects. Today, neural network have found much usage in different science and one of its usage and specification would be factors estimation. Two models have been studied for time and stability specification at available scheme. available scheme includes low experiences in recent years and it's calculated of modern schemes as well.

2- Main body

Principle of artificial neural networks is in a way that absorbs neurons & inputs that assemble in a special way, if these inputs be smaller than pre-estimated inputs, neuron would be remained inactive. After the neurons become active, inputs would be calculated and transferred to specified output by a special function. in neural cell, each input multiples at its relevant weight which shows symphyseal strength and then all these inputs would be summed together in order to specify neural cell fomentation level.

Characteristics of artificial neural processor by using a sample of biological neuron are as following:

- 1-each processor receives various signs
- 2-received signs are specified by weight
- 3-inputs which are applied by weight would be summed in processor unit

4-if inputs be enough big, processor unit becomes active and transfer signs to out

5- one processor's output sometimes transfer to many other processors

In general, it concluded that applying neural networks at different basis of civil engineer would have

Efficient result. most of these numeral calculations has got possible due to long duration of

Normal methods Implementation and it's difficulty.

Artificial neural network is based on biological neural network that is used in direction of inputs and each of inputs is another neural network output introduction. each input multiples in its proportionate connection and then all inputs will be summed with each other for specifying neural cell fomentation level in the end. this would be resulted from figure one that cluster of inputs have shown as $x_1, x_2, x_3, \dots, x_n$ and on the whole, they would be specified as a vector and are like signs that would be transferred to synopses of biological neural cell. Each sign multiples in each weight of $w_1, w_2, w_3, \dots, w_n$. summation unit of all inputs with weight would be summed and give the output which is shown by NET. This process mostly would be processed by AOTIRATION FUNDIM in order to obtain neural cell output sign as below formulas.

$$\text{Out} = 1 / (1 + e^{-net})$$

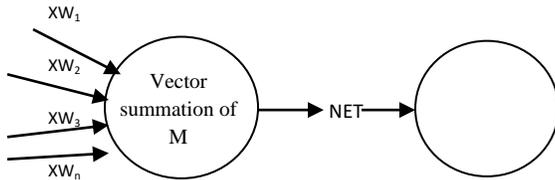


Figure 1-input and output. Neural network algorithm

Neural Network is divided in two groups about layers that can be specified as one or multi layer of neural network .this square network have capability of different calculation that multi layer network have more capacity which are followed continuously with each other like fountain. In fact, it's claimed that one layer's input would provide another layer's output.

Layers of Multi layers network have different duties as a layer generates network output would be specified output layer and other layers would be specified as hidden layers.

Network design with return dispersion algorithm need following steps.

- One education pair chooses from education group
- network output calculation
- network output error calculation and optional mode
- network weight design for reducing error

3- Methodology

Neural network design for time and stability calculation at sylvan construction

Based on the point that multi layers neural networks were specified, it's observed that always one input layer and one output layer are along some hidden layers. Now; preparation, regulation and design of mentioned layers would be done.

In the data collection section, questionnarie was used for related time input evaluation and designs & maps beside interview were used for inputs of sylvan stability evaluation for neural network algorithm.

32 factors that get delay result in plan projects was used as these factors 's response was given by civil engineers and they were from 0-4 characters. According to map of -, simulation, design and stability of concrete sylvans were done that were considered in the direction of neural network algorithms inputs. After preparing and entering inputs to neural network, it's time for different networks designs that input matrix deviation domain, hidden layers, available ties in each layer and fomentation factors would be designed .Neural power software has been utilized during network design.

Time:

In this section, time as a main character in education pairs projects were introduced to related software and then design parameters were specified. In this network, learning rate and permissible error are respectively 0.1 and 0.001. five ties in first layer and one layer in second layer is considered as well, that is shown as following table:

Table 1. Five ties in first layer and one layer in second layer is considered

output	rows	Network name	Active hidden first layer	First layer's ties number	Active hidden second layer	Ties number	error
Bipolar linear	1	N 1		5			0.001
Thaw	2	N 2		5			0.001
Thaw	3	N 3		5	Tanh	5	0.001
Bipolar linear	4	N4		5			0.001
Tanh	5	N5		5			0.001

After designing above network, evaluation process would be accomplished as well.

Function must be compared with output for evaluation and networks with near response would be Chosen finally, a group by the name of chosen networks groups is considered for choosing one member Of this group by regarding various estimated times for implementing project for making it easier, an Average of the whole time duration and 10% of it as project error has been considered.

Table 2. shows 5 factors of above networks' design process

Network name	Questionnaire						
N1	28.56	34.5	34.73	24.20	23.81	32.81	47.70
N2	32.28	35.50	37.10	23.30	26.80	37.30	28.97
N3	33.67	37.80	33.40	23.95	23.95	40.96	39.20
N4	35.18	31.50	25.70	24.98	31.67	29.80	42.25
N5	37.39	29.60	31.72	24.5	31.30	25.30	35.70

Table 2. comparison of 5 networks at available scheme (time are in month basis)

After implementing process, design and analysis and evaluation of it's data and also estimating all Networks were perused in order to specify networks with better efficiency .hence, choosing appropriate & Sample networks process was specified.

Table 3-shows the correct and incorrect estimations

Condition	network	Correct estimation	Incorrect estimation
Verified	N1	5	3
Verified	N2	5	2
Verified	N3	5	2
Not verified	N4	1	6
Not verified	N5	3	4

Table 3 shows verified and non verified estimation of these research's networks.

Diagram 1, 2,3 shows above table's data in basis of N1-N5 networks design.

Stability evaluation:

By regarding the time that explosion wave collides with so big tin surface by zero angle, air 's current Direction would be got inverse at explosion wave and استاتیکی pressure on surface would be increased Due to increase the reflexed pressure and FACE ON process

occurs. So, when reflex process completed, Reflexed wave would be emitted at opposite direction.

Maximum intense and dynamic reaction of sylvan Dynamic attributes of sylvan and dynamic charges are totally different from static charge .by this Situation, intense are higher than static pressure power. Resistor increscent coefficients are up to 4 and Extension is up to 6 at 0.01-0.001 range of STRIN. by regarding intense evaluation and sylvan's resistance, Is concluded that one of weak factor of sylvan's would be low formation across intense

Charges .therefore, by increasing sylvan formation, explosion and collided charges could be reduced. On The other hand, result show that yarn with mixture of polymer & metal could be used for increasing sylvan 's resistance and stability regarding the inputs & outputs of neural network algorithms in order to Increase formation and capacity of sylvan against collided charges, finally explosion charges would be Decreased intensely.

4- Conclusion

In a case that permissible error gets smaller than 0.0001, network wouldn't have better function Because it may diminish extension capability. Ties number on each layer won't have direct effect on Network function, as if ties number increases, the function won't be improved. At available scheme, time and stability at stimulation & analysis of sylvan were observed in order to Estimate project implementation time and discuss about its stability and resistance .networks which had Estimated responses were two layers and generally their firs transfer layer had been TANH. This Research based on it's result helps project directors and civil schemes because two effective Parameters of time & stability is evaluated and estimated

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