18CSE352T-Neuro Fuzzy and Genetic Programming

Interactive Learning Showcase CT3-2

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What are Neural Networks ?

Artificial Neural Networks (ANN) are information processing systems that are inspired by the way biological nervous system and the brain works. They are a subset of machine learning, and at the heart of deep-learning models and the concept of soft computing .

Neural networks mimic the way biological neurons work together to identify phenomena, weigh options and arrive at conclusions and aims at bringing traditional computers as close as possible to the working of the human brain.

How far have neural networks come ?

With the evolution of neural networks, various tasks which were considered unimaginable can be done conveniently now. Tasks such as image recognition, speech recognition, finding deeper relations in a data set have become much easier.

Neural Networks have had a huge impact with a wide range of applications ranging from pattern recognition, weather prediction, stock market prediction and a vast plethora of much more.

With the rapid increase in the research and development of neural networks, we can only assume they will become for powerful and their impact much more widespread and unimaginable.

The Ultimate Neural Network Crossword Game

The resources to get started on the concept of neural networks is quite endless with the rapid development in the field. Just like any other topic, understanding and keeping in mind the basic building blocks of any concept is the best way to have a strong grasp and deeper understanding. This game tests exactly that, and ensures one has as good of a hold on the basic terminologies of neural networks as much as possible.

Why a crossword ?

Crosswords are a fun and competitive way to increase problem solving skills, focus and test one's memory in a fun way. Game like this are fun ways to learn a concept, but in a way more entertaining and which forces one to use their mind rather than route learning by simply staring at a book. It improves cognitive thinking and improves critical thinking, working memory as well as recollection power. Thus it is a simple fun way to get started and the insides of your brain ticking while getting introduced to the topic of neural networks.

What makes this crossword so different ?

The rules of solving a crossword are pretty straightforward. You read a clue and then fill the position accordingly with the correct answer. But this one has a slight twist, which makes it the ultimate crossword. You have to not only solve the crossword, but also you must, solve the clues of the crossword first. Not so easy now is it ?

To find and finish the clues of the crossword, it's simple. You just have to find the appropriate words in a word search game, and if you know the basics of neural networks, it's more than enough.

Solving the crossword

It's quite simple, in order to solve the crossword you first need to solve the clues word search game. The word search might be a bit hard, as there are no direct indications but there are hints to help out if you are stuck. Once you solve it and get all the clue finishers, you just have to map them to the corresponding crossword hint so that they make sense. Once that's done all that's left is to solve the crossword. And that's the simple way to conquer the ultimate neural network crossword.

Clue Searcher : Neural Networks

R D U E C I N O L E T S N N E S R U M U
Y Y S M N E I I N X S I A E R I S I T R
N B E R R O R Y S K A E T P S T X C C Y
L S N N R I T L M D A P N R T L Y K N Y
P N R A A I S R E Y E O R R I D C R S V
T O T P P O A A A S G C X P E A R K O M
O I R P I I D E I O O R C S B U X S C E
T T R R T L O N P N C A I D I P N S E I
G C I O T I A I N N C V E M E N O E L P
S E R X R G I L N U R E C I I T T C M M
R N R I R N N E N E F K I S A R C O C T
C N Y M E C A I P R I N I E R X T D L N
I O U A Y A R U S R S A L I T O T P E O
R C R T T R S R E S B N R O D N D N A N
T R S I X N A C I S E I A T V E E N P E
E E O O U T P N Y S I C A R N E C M A E
M T I N A R I O I E C R O E M N N S E R
M N S S I S E L E B O A I R C T B I E E
Y I A R A C I E C N I K O T P E R R A A
S Y S R Y U U E V I T A R E T I N R U M

Clue Searcher - Neural Networks
By SAMPURNA SAHA (RA2111003011044)

Find the 10 clues within this grid of letters. Could be horizontal, vertical, diagonal and even in backwards format.

Clue Searcher : Neural Networks

Clue Searcher - Neural Networks *by SAMPURNA SAHA (RA2111003011044)*
Powered by PuzzleMe™

Here two words have been found, one being 'error' in the horizontal format and one being 'binary'. Don't worry, if you can't seem to find anything you can always ask for hint to indicate one of the letters.

The Solution Reveal

Hope that you've found all of the clues with the least amount of help.
And now's the grand reveal.

Clue Searcher : Neural Networks
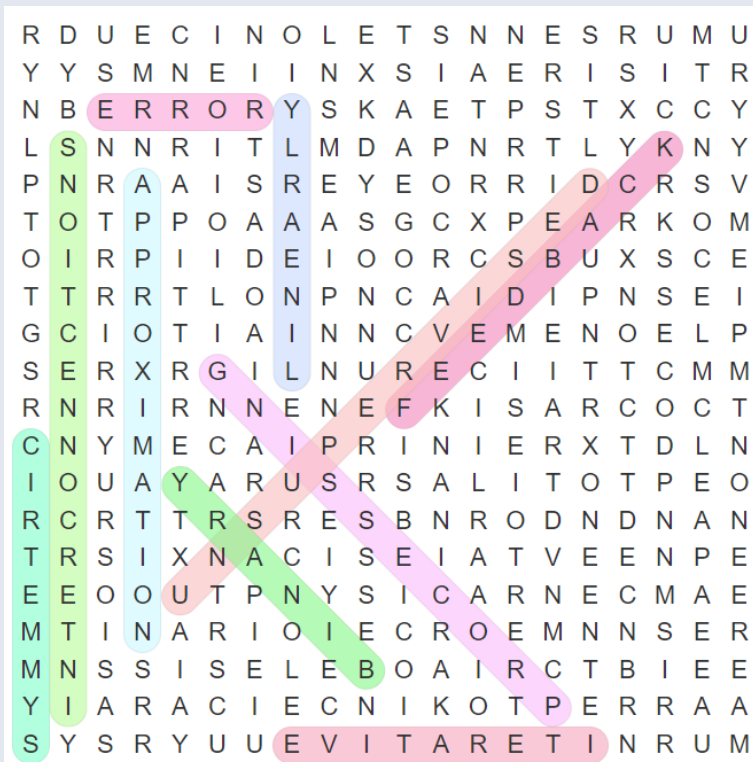
Clue Searcher - Neural Networks *by SAMPURNA SAHA (RA2111003011044)*
Powered by PuzzleMe™

The solutions to this word search were :

- Error
- Symmetric
- Interconnections
- Approximation
- Binary
- Unsupervised
- Linearly
- Processing
- Iterative
- Feedback

Now, on to the ultimate neural network crossword game :

Now that we've gotten the clues to solve the crossword, we have to fill in the appropriate words in the appropriate blanks of the crossword hints. Then with the finished hints you can go on to solve the crossword.

All the words to be fit in make a significant difference in the crossword clue and also makes finding the crossword answers much more easier.

The Ultimate Neural Network Crossword Game

The ultimate Neural Network Crossword Game
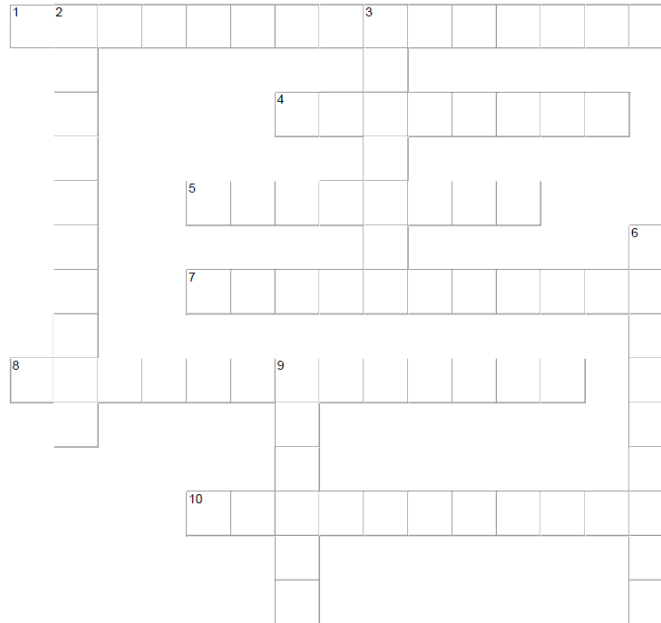
By SAMPURNA SAHA
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ACROSS

1 Supervised learning method where the net repeatedly adjusts its interconnection weights on the basis of the _ _ _ _ _ _

4 The process of finding the appropriate set of weights of the _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ so that the ANN attains the ability to perform the designated task.

5 Type of _ _ _ _ _ _ _ _ _ auto associative net

7 Class of neural networks used for _ _ _ _ _ _ _ _ _ _ _ _ _ learning

8 Deals with partial truth, uncertainty and _ _ _ _ _ _ _ _ _ _ _ _ _

10 The famous "perceptron _ theorem" states that for a set of _ _ _ _ _ _ _ _ separable patterns, a perceptron is guaranteed to learn the appropriate values of the weights

DOWN

2 The output from a _ _ _ _ _ _ _ _ _ _ unit

3 Recognizes _ _ _ _ _ _ patterns, discovered by Bernard Widrow

6 Type of network allowing _ _ _ _ _ _ _ _ loops

9 Fully interconnected network with _ _ _ _ _ _ _ _ _ interconnections and self loops

Here, we can the clues all have blanks within them, and we have to map the words from the word search to finish the clues

Let's try solving this crossword

The first clue is as 'Supervised learning method where the net repeatedly adjusts its interconnection weights on the basis of the _ _ _ _ _'. From the word search game we get "error" as the word which not only fits the blank spaces but also makes a sensible clue.

From this the full clue now is Supervised learning method where the net repeatedly adjusts its interconnection weights on the basis of the e r r o r'.

And we can guess the solution to this clue is 'Backpropagation'

Finding all the clues of the crossword
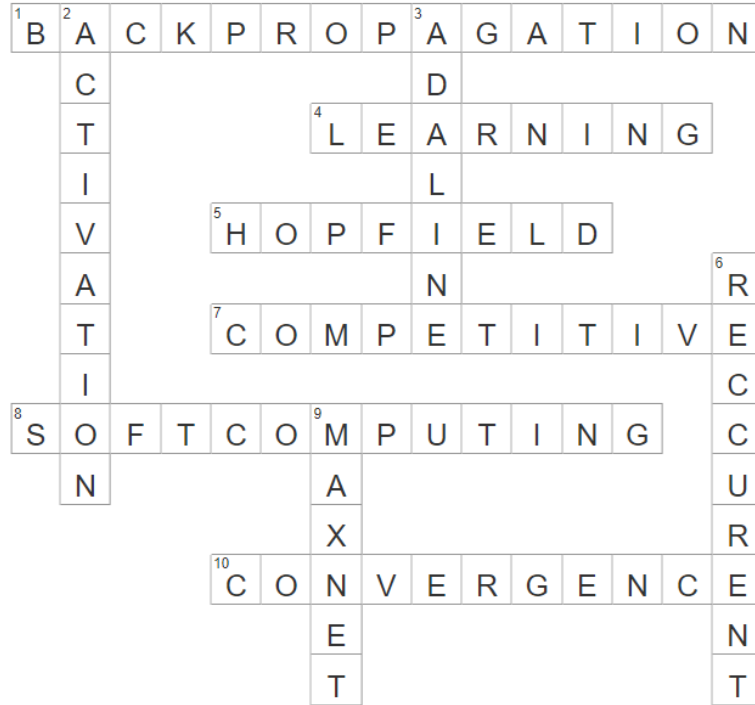
<u>Across :</u>

1. Supervised learning method where the net repeatedly adjusts its interconnection weights on the basis of the <u>error</u>

4. The process of finding the appropriate set of weights of the <u>interconnections</u> so that the ANN attains the ability to perform the designated task.

5. Type of <u>iterative</u> auto associative net

7. Class of neural networks used for <u>unsupervised</u> learning

8. Deals with partial truth, uncertainty and <u>approximation</u>

10. The famous "perceptron _ theorem" states that for a set of linearly separable patterns, a perceptron is guaranteed to learn the appropriate values of the weights

Finding all the clues of the crossword

<u>Down :</u>

2. The output from a <u>processing</u> unit

3. Recognizes <u>binary</u> patterns, discovered by Bernard Widrow

6. Type of network allowing <u>feedback</u> loops

9. Fully interconnected network with <u>symmetric</u> interconnections and self-loops

Finally solving the crossword

The ultimate Neural Network Crossword Game *by*
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Conclusion :

Thus the Ultimate Neural Network Crossword is a fun way to get the brain clogs whirring and ensure one has a strong grasp over the basic terms and terminologies over the introductory concept of neural networks. Once one is confident over these, it makes learning the more advanced topics of neural networks much more easier.

It is a simple yet innovative way to learn new things, and one can also learn and have a good time with their peers as there are points up for grabs and can help boost collaboration and healthy peer learning and discussions.

Clue Searcher - Neural Networks

[Play this here !](#)

The ultimate Neural Network Crossword Game

[Play this here !](#)

[Check this out on Github](#)

Thank You