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 NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Deep Learning - IIT Ropar (course)


Course outline

How does an NPTEL online course work?

Week 0

Week 1

● Biological Neuron (unit? unit=17&lesson=18)

● From Spring to Winter of AI (unit? unit=17&lesson=19)

● The Deep Revival (unit? unit=17&lesson=20)

● From Cats to Convolutional Neural Networks (unit? unit=17&lesson=21)

● Faster, higher, stronger (unit? unit=17&lesson=22)

Assignment 1

The due date for submitting this assignment has passed.

Due on 2021-02-03, 23:59 IST.

Assignment submitted on 2021-02-03, 22:54 IST

1) The Reticular Theory proposed by Joseph VonGerlach states that our nervous system is a single continuous network as opposed to a network of many discrete cells. **1 point**

☒ True

☐ False

Yes, the answer is correct.

Score: 1

Accepted Answers:

True

2) The very large computations of Deep Neural Network require GPUs as opposed to CPUs. **1 point**

☒ True

☐ False

Yes, the answer is correct.

Score: 1

Accepted Answers:

True

3) NeoCognition is a technique used for **1 point**

☐ Handwritten character recognition

☐ Image recognition

● The Curious Case of Sequences (unit? unit=17&lesson=23)

● Beating humans at their own games (literally) (unit? unit=17&lesson=24)

● The Madness (2013-) (unit? unit=17&lesson=25)

● (Need for) Sanity (unit? unit=17&lesson=26)

● Motivation from Biological Neurons (unit? unit=17&lesson=27)

● McCulloch Pitts Neuron, Thresholding Logic (unit? unit=17&lesson=28)

● Perceptrons (unit? unit=17&lesson=29)

● Error and Error Surfaces (unit? unit=17&lesson=30)

● Perceptron Learning Algorithm (unit? unit=17&lesson=31)

● Proof of Convergence of Perceptron Learning Algorithm (unit? unit=17&lesson=32)

● Lecture Material for Week 1 (unit? unit=17&lesson=33)

● Quiz:
Assignment 1

- ☐ Pattern recognition
- ☒ Both Handwritten character recognition and pattern recognition

Yes, the answer is correct.

Score: 1

Accepted Answers:

Both Handwritten character recognition and pattern recognition

4) Long Short-Term Memory (LSTMs) can solve complex long time lag tasks.

1 point

- ☒ True
- ☐ False

Yes, the answer is correct.

Score: 1

Accepted Answers:

True

5) The problems faced while working with DNN are

1 point

- ☐ Numerical Inability
- ☐ Sharp Minima
- ☐ Non robustness
- ☐ High Capacity
- ☒ All of these

Yes, the answer is correct.

Score: 1

Accepted Answers:

All of these

6) S_1 and S_2 are two statements related to Perceptron.

0 points

S_1 : According to Frank Rosenberg, a Perceptron may eventually be able to learn, make decisions and even translate languages.

S_2 : Minsky and Papert said that it is possible that a Perceptron cannot handle some very simple functions like XOR.

Choose the correct option with respect to S_1 and S_2 .

- ☐ S_1 is true and S_2 is false
- ☐ S_1 is false and S_2 is true
- ☒ Both S_1 and S_2 are true
- ☐ Both S_1 and S_2 are false

Yes, the answer is correct.

Score: 0

Accepted Answers:

Both S_1 and S_2 are true

7) Which of the following is/are Deep learning-based solution/s?

1 point

- ☐ Feed Forward Neural Networks

**(assessment?
name=177)**

- ☐ Week 1
Feedback Form
: Deep
Learning - IIT
Ropar (unit?
unit=17&lesson=179)

Week 2

- ☒ Linearly
Separable
Boolean
Functions
(unit?
unit=35&lesson=36)
- ☒ Representation
Power of a
Network of
Perceptrons
(unit?
unit=35&lesson=37)
- ☒ Sigmoid
Neuron (unit?
unit=35&lesson=38)
- ☒ A typical
Supervised
Machine
Learning Setup
(unit?
unit=35&lesson=39)
- ☒ Learning
Parameters:
(Infeasible)
guess work
(unit?
unit=35&lesson=40)
- ☒ Learning
Parameters:
Gradient
Descent (unit?
unit=35&lesson=41)
- ☒ Representation
Power of
Multilayer
Network of
Sigmoid
Neurons (unit?
unit=35&lesson=42)

- ☐ Convolutional Neural Networks
- ☐ Recurrent Neural Networks
- ☒ All of these

Yes, the answer is correct.

Score: 1

Accepted Answers:

All of these

8) Dendrite is used to

1 point

- ☐ Process the information
- ☒ Receive signals from other neurons
- ☐ Transmits the outputs of the neuron
- ☐ All of these

Yes, the answer is correct.

Score: 1

Accepted Answers:

Receive signals from other neurons

9) To implement linearly separable functions

1 point

- ☒ Single perceptron can be used
- ☐ Double perceptron can be used
- ☐ Either single or double perceptron can be used
- ☐ None of these

No, the answer is incorrect.

Score: 0

Accepted Answers:

Either single or double perceptron can be used

10) Which of the following is not true regarding McCulloch Pitts neuron?

1 point

- ☐ It is a simplified computational model of the neuron
- ☐ 'g' collects all the inputs
- ☐ 'f' takes a decision based on the aggregation
- ☒ Inhibitory input does not affect the output of the neuron

Yes, the answer is correct.

Score: 1

Accepted Answers:

Inhibitory input does not affect the output of the neuron