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2111cs010016@mallareddyuniversity.ac.in ✓

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Deep Learning - IIT Ropar (course)Course
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NPTEL ()How does an
NPTEL
online
course
work? ()

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Week 2 ()

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Week 5 ()

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Week 8 ()

- ☐ A quick recap
of training
deep neural
networks
(unit?)

Week 8 : Assignment 8

The due date for submitting this assignment has passed.

Due on 2024-09-18, 23:59 IST.

Assignment submitted on 2024-09-18, 18:36 IST

1) Which of the following activation functions is not zero-centered?

1 point

- ☒ Sigmoid
☐ Tanh
☒ ReLU
☒ Softmax

Yes, the answer is correct.

Score: 1

Accepted Answers:

Sigmoid

ReLU

Softmax

2) What is the gradient of the sigmoid function at saturation?

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Numeric) 0

3) What are the challenges associated with using the Tanh(x) activation function?

1 point

1 point

- ☐ It is not zero centered
☒ Computationally expensive



unit=107&less
on=108)

☐ Unsupervised
pre-training
(unit?
unit=107&less
on=109)

☐ Better
activation
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unit=107&less
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☒ Quiz: Week 8
: Assignment
8
(assessment?
name=296)

Week 9 ()

week 10 ()

Week 11 ()

Week 12 ()

☐ Non-differentiable at 0

☒ Saturation

Yes, the answer is correct.

Score: 1

Accepted Answers:

Computationally expensive

Saturation

4) Which of the following activation functions is preferred to avoid the vanishing gradient problem? **1 point**

☐ Sigmoid

☐ Tanh

☒ ReLU

☐ None of these

Yes, the answer is correct.

Score: 1

Accepted Answers:

ReLU

5) Given a neuron initialized with weights $w_1 = 1.5$, $w_2 = 0.5$, and inputs $x_1 = 0.2$, $x_2 = -0.5$, calculate the output of a ReLU neuron.

0.05

Yes, the answer is correct.

Score: 1

Accepted Answers:

(Type: Numeric) 0.05

1 point

6) What makes batch normalization effective in deep networks? **1 point**

☒ It reduces the covariance shift

☒ It accelerates training

☒ It introduces regularization

☒ It reduces the internal shift in activations

No, the answer is incorrect.

Score: 0

Accepted Answers:

It reduces the covariance shift

It accelerates training

It reduces the internal shift in activations

7) Which of the following best describes the concept of saturation in deep learning? **1 point**

☒ When the activation function output approaches either 0 or 1 and the gradient is close to zero.

☐ When the activation function output is very small and the gradient is close to zero.

☐ When the activation function output is very large and the gradient is close to zero.

☐ None of the above.



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Solving
Session -
July 2024 ()**

Partially Correct.

Score: 0.33

Accepted Answers:

When the activation function output approaches either 0 or 1 and the gradient is close to zero.

When the activation function output is very small and the gradient is close to zero.

When the activation function output is very large and the gradient is close to zero.

8) Which of the following methods can help to avoid saturation in deep learning?

1 point

- ☒ Using a different activation function.
- ☐ Increasing the learning rate.
- ☐ Increasing the model complexity
- ☐ All of the above.

Yes, the answer is correct.

Score: 1

Accepted Answers:

Using a different activation function.

9) What is the main cause of the Dead ReLU problem in deep learning?

1 point

- ☐ High variance
- ☒ High negative bias
- ☐ Overfitting
- ☐ Underfitting

Yes, the answer is correct.

Score: 1

Accepted Answers:

High negative bias

10) In Batch Normalization, which parameter is learned during training?

1 point

- ☐ Mean
- ☐ Variance
- ☒ γ
- ☐ ϵ

Yes, the answer is correct.

Score: 1

Accepted Answers:

γ

