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NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Deep Learning - IIT Ropar (course)Course
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Week 11 : Assignment 11

The due date for submitting this assignment has passed.

Due on 2024-10-09, 23:59 IST.

As per our records you have not submitted this assignment.

1) For which of the following problems are RNNs suitable?

1 point

- ☐ Generating a description from a given image
- ☐ Forecasting the weather for the next N days based on historical weather data
- ☐ Converting a speech waveform into text
- ☐ Identifying all objects in a given image

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Generating a description from a given image**Forecasting the weather for the next N days based on historical weather data**Converting a speech waveform into text*

2) What is the basic concept of Recurrent Neural Network?

1 point

- ☐ Use a loop between inputs and outputs in order to achieve the better prediction
- ☐ Use recurrent features from dataset to find the best answers
- ☐ Use loops between the most important features to predict next output
- ☐ Use previous inputs to find the next output according to the training set

No, the answer is incorrect.

Score: 0

Accepted Answers:

Use previous inputs to find the next output according to the training set

3) Select the correct statements about GRUs

1 point

- ☐ GRUs have fewer parameters compared to LSTMs

Week 11 ()

- ☐ Sequence Learning Problems (unit? unit=150&lesson=151)
- ☐ Recurrent Neural Networks (unit? unit=150&lesson=152)
- ☐ Backpropagation through time (unit? unit=150&lesson=153)
- ☐ The problem of Exploding and Vanishing Gradients (unit? unit=150&lesson=154)
- ☐ Some Gory Details (unit? unit=150&lesson=155)
- ☐ Selective Read, Selective Write, Selective Forget - The Whiteboard Analogy (unit? unit=150&lesson=156)
- ☐ Long Short Term Memory(LSTM) and Gated Recurrent Units(GRUs) (unit? unit=150&lesson=157)
- ☐ How LSTMs avoid the problem of

- ☐ GRUs use a single gate to control both input and forget mechanisms
- ☐ GRUs are less effective than LSTMs in handling long-term dependencies
- ☐ GRUs are a type of feedforward neural network

No, the answer is incorrect.

Score: 0

Accepted Answers:

GRUs have fewer parameters compared to LSTMs

GRUs use a single gate to control both input and forget mechanisms

4) What is the main advantage of using GRUs over traditional RNNs? **1 point**

- ☐ They are simpler to implement
- ☐ They solve the vanishing gradient problem
- ☐ They require less computational power
- ☐ They can handle non-sequential data

No, the answer is incorrect.

Score: 0

Accepted Answers:

They solve the vanishing gradient problem

5) What is the vanishing gradient problem in training RNNs? **1 point**

- ☐ The weights of the network converge to zero during training
- ☐ The gradients used for weight updates become too large
- ☐ The network becomes overfit to the training data
- ☐ The gradients used for weight updates become too small

No, the answer is incorrect.

Score: 0

Accepted Answers:

The gradients used for weight updates become too small

6) What is the role of the forget gate in an LSTM network? **1 point**

- ☐ To determine how much of the current input should be added to the cell state
- ☐ To determine how much of the previous time step's cell state should be retained
- ☐ To determine how much of the current cell state should be output
- ☐ To determine how much of the current input should be output

No, the answer is incorrect.

Score: 0

Accepted Answers:

To determine how much of the previous time step's cell state should be retained

7) We construct an RNN for the sentiment classification of text where a text can have positive sentiment or negative sentiment. Suppose the dimension of one-hot encoded-words is $R^{100 \times 1}$, dimension of state vector s_i is $R^{50 \times 1}$. What is the total number of parameters in the network? (Don't include biases also in the network)

No, the answer is incorrect.

vanishing
gradients
(unit?
unit=150&less
on=158)

- ☐ How LSTMs avoid the problem of vanishing gradients (Contd.) (unit? unit=150&less on=159)
- ☐ Lecture Material for Week 11 (unit? unit=150&less on=160)
- ☐ Week 11 Feedback Form: Deep Learning - IIT Ropar (unit? unit=150&less on=194)
- ☐ Quiz: Week 11 : Assignment 11 (assessment? name=299)

Week 12 ()

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Score: 0

Accepted Answers:

(Type: Range) 7599.5,7601.5

1 point

8) Arrange the following sequence in the order they are performed by LSTM at time step t. **1 point**

[Selectively read, Selectively write, Selectively forget]

- ☐ Selectively read, Selectively write, Selectively forget
- ☐ Selectively write, Selectively read, Selectively forget
- ☐ Selectively read, Selectively forget, Selectively write
- ☐ Selectively forget, Selectively write, Selectively read

No, the answer is incorrect.

Score: 0

Accepted Answers:

Selectively read, Selectively forget, Selectively write

9) We are given an RNN where max eigenvalue λ of Weight matrix is 0.9. The activation function used in the RNN is logistic/sigmoid. What can we say about $\nabla = \left\| \frac{\partial s_{20}}{\partial s_1} \right\|$? **1 point**

- ☐ Value of ∇ is close to 0.
- ☐ Value of ∇ is very high.
- ☐ Value of ∇ is 3.5.
- ☐ Insufficient information to say anything.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Value of ∇ is close to 0.

10) Which type of neural network is best suited for processing sequential data? **1 point**

- ☐ Convolutional Neural Networks (CNN)
- ☐ Recurrent Neural Networks (RNN)
- ☐ Fully Connected Neural Networks (FCN)
- ☐ Deep Belief Networks (DBN)

No, the answer is incorrect.

Score: 0

Accepted Answers:

Recurrent Neural Networks (RNN)

