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shweta_s@cs.iitr.ac.in

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

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Course outline

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Week 12: Assignment 12

The due date for submitting this assignment has passed.

Due on 2025-04-16, 23:59 IST.

Assignment submitted on 2025-04-11, 11:36 IST

1) What is the primary purpose of the attention mechanism in neural networks? ***1 point***

- ○ To reduce the size of the input data
- ○ To increase the complexity of the model
- ○ To eliminate the need for recurrent connections
- ◉ To focus on specific parts of the input sequence

Yes, the answer is correct.
Score: 1

Accepted Answers:
To focus on specific parts of the input sequence

2) Which of the following are the benefits of using attention mechanisms in neural networks? ***1 point***

- ☑ Improved handling of long-range dependencies
- ☑ Enhanced interpretability of model predictions
- ☑ Ability to handle variable-length input sequences
- ☐ Reduction in model complexity

Yes, the answer is correct.
Score: 1

Accepted Answers:
Improved handling of long-range dependencies
Enhanced interpretability of model predictions
Ability to handle variable-length input sequences

3) If we make the vocabulary for an encoder-decoder model using the given sentence. ***1 point***

What will be the size of our vocabulary?
Sentence: Attention mechanisms dynamically identify critical input components, enhancing contextual understanding and boosting performance

- 13
- 14
- 15
- 16

No, the answer is incorrect.
Score: 0
Accepted Answers:
15

4) We are performing the task of *Machine Translation* using an encoder-decoder model. Choose the equation representing the *Encoder* model. ***1 point***

- $s_0 = CNN(x_i)$
- $s_0 = RNN(s_{t-1}, e(\hat{y}_{t-1}))$
- $s_0 = RNN(x_{it})$
- $s_0 = RNN(h_{t-1}, x_{it})$

Yes, the answer is correct.
Score: 1
Accepted Answers:
$s_0 = RNN(h_{t-1}, x_{it})$

5) Which of the following attention mechanisms is most commonly used in the Transformer model architecture? ***1 point***

- Additive attention
- Dot product attention
- Multiplicative attention
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Dot product attention

6) Which of the following is NOT a component of the attention mechanism? ***1 point***

- [x] Decoder
- [ ] Key
- [ ] Value
- [ ] Query
- [x] Encoder

Yes, the answer is correct.
Score: 1
Accepted Answers:

Decoder
Encoder

7) In a hierarchical attention network, what are the two primary levels of attention? ***1 point***

- (●) Character-level and word-level
- ( ) Word-level and sentence-level
- ( ) Sentence-level and document-level
- ( ) Paragraph-level and document-level

No, the answer is incorrect.
Score: 0
Accepted Answers:
Word-level and sentence-level

8) Which of the following are the advantages of using attention mechanisms in encoderdecoder models? ***1 point***

- [x] Reduced computational complexity
- [x] Ability to handle variable-length input sequences
- [ ] Improved gradient flow during training
- [x] Automatic feature selection
- [x] Reduced memory requirements

No, the answer is incorrect.
Score: 0
Accepted Answers:
Ability to handle variable-length input sequences
Improved gradient flow during training
Automatic feature selection

9) In the encoder-decoder architecture with attention, where is the context vector typically computed? ***1 point***

- ( ) In the encoder
- ( ) In the decoder
- (●) Between the encoder and decoder
- ( ) After the decoder

Yes, the answer is correct.
Score: 1
Accepted Answers:
Between the encoder and decoder

10) Which of the following output functions is most commonly used in the decoder of an encoder-decoder model for translation tasks? ***1 point***

- (●) Softmax
- ( ) Sigmoid
- ( ) ReLU
- ( ) Tanh

Yes, the answer is correct.
Score: 1

Accepted Answers:
Softmax