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Quiz review

Started on	Wednesday, 13 March 2024, 4:34 PM
State	Finished
Completed on	Wednesday, 13 March 2024, 4:37 PM
Time taken	2 mins 53 secs
Marks	10.00/10.00
Grade	**100.00** out of 100.00

Question 1
Correct
Mark 1.00 out of 1.00

Why is variational inference used in VAEs?

○ None of the given options

◉ To approximate intractable posterior distributions ✔

○ To speed up training

○ To reduce model size

○ To improve model accuracy

The correct answer is: To approximate intractable posterior distributions

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Question 2
Correct
Mark 1.00 out of 1.00

Which of the following is a key component of the VAE loss function?

○ Accuracy

○ Precision

◉ KL divergence ✔

○ Cross-entropy only

○ Mean squared error only

The correct answer is: KL divergence

Question 3

Correct

Mark 1.00 out of 1.00

Autoencoders primarily focus on which aspect of data?

- ○ Generation
- ○ Classification
- ○ Filtering
- ○ Clustering
- ● Reconstruction ✔

The correct answer is: Reconstruction

Question 4

Correct

Mark 1.00 out of 1.00

Which of the following is NOT a typical use case for VAEs?

- ○ Face generation for video games
- ○ Fashion design
- ● Real-time speech translation ✔
- ○ Anomaly detection in industrial equipment
- ○ Medical imaging enhancement

The correct answer is: Real-time speech translation

Question 5

Correct

Mark 1.00 out of 1.00

What do VAEs use to generate a distribution over latent variables?

- ● Variational inference ✔
- ○ Transfer learning
- ○ None of the given options
- ○ Gradient descent
- ○ Backpropagation

The correct answer is: Variational inference

Question 6

Correct

Mark 1.00 out of 1.00

Why is the reparameterization trick important in VAEs?

- ◉ It allows backpropagation through random nodes ✔
- ○ It reduces overfitting
- ○ None of the given options
- ○ It simplifies the model architecture
- ○ It increases model efficiency

The correct answer is: It allows backpropagation through random nodes

Question 7

Correct

Mark 1.00 out of 1.00

How do VAEs differ from traditional autoencoders?

- ◉ VAEs introduce randomness via a probabilistic layer ✔
- ○ VAEs use supervised learning
- ○ VAEs are more accurate
- ○ VAEs are faster
- ○ VAEs are simpler

The correct answer is: VAEs introduce randomness via a probabilistic layer

Question 8

Correct

Mark 1.00 out of 1.00

Which optimization technique is commonly used with VAEs?

- ○ Principal component analysis
- ○ Simulated annealing
- ◉ Stochastic gradient descent (SGD) ✔
- ○ Genetic algorithms
- ○ None of the given options

The correct answer is: Stochastic gradient descent (SGD)

Question 9

Correct

Mark 1.00 out of 1.00

In which application can VAEs detect unusual patterns?

- ○ Music composition
- ○ Fashion design
- ○ Face generation for video games
- ● Anomaly detection in industrial equipment ✔
- ○ Text generation

The correct answer is: Anomaly detection in industrial equipment

Question 10

Correct

Mark 1.00 out of 1.00

In which application might VAEs be used to enhance image quality?

- ○ Text generation
- ○ Video streaming
- ○ Social media photo filters
- ○ None of the given options
- ● Medical imaging ✔

The correct answer is: Medical imaging

◀ **Variational Autoencoders**

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