Started on	Friday, 17 November 2023, 10:26 AM
State	Finished
Completed on	Sunday, 19 November 2023, 5:30 PM
Time taken	2 days 7 hours
Marks	50.00/50.00
Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 1.00 out of 1.00

19. What is data augmentation in image classification?

Select one:

- a. Deleting irrelevant patterns from the dataset
- b. Generating new images from existing data by applying transformations ✔
- c. Changing the background of patterns
- d. Creating new classes for patterns

Question **2**

Correct

Mark 1.00 out of 1.00

30. Which of the following is NOT a common challenge in image pattern classification?

Select one:

- a. Variability in pattern appearance
- b. Limited availability of computing resources ✔
- c. Presence of noise in images
- d. Large and complex datasets

Question **3**

Correct

Mark 1.00 out of 1.00

23. Which layer in a CNN is responsible for reducing spatial dimensions while retaining important information?

Select one:

- a. Pooling layer ✔
- b. Fully connected layer
- c. Activation layer
- d. Convolutional layer

Question **4**

Correct

Mark 1.00 out of 1.00

41. What is the basic building block of a neural network?

Select one:

- a. A neuron ✔
- b. A prototype
- c. A pixel
- d. A feature

Question **5**

Correct

Mark 1.00 out of 1.00

21. What is overfitting in image classification?

Select one:

- a. When a model performs too well on the test data
- b. When a model performs poorly on the training data
- c. When a model generalizes well to new data
- d. When a model fits noise in the training data and doesn't generalize well ✔

Question **6**

Correct

Mark 1.00 out of 1.00

45. What is the advantage of using a stride greater than 1 in a convolutional layer?

Select one:

- a. It reduces the number of filters needed in the layer.
- b. It increases the depth of the neural network.
- c. It increases the size of the output feature maps.
- d. It reduces the computational complexity of the layer. ✔

Question **7**

Correct

Mark 1.00 out of 1.00

31. What is the difference between image classification and image segmentation?

Select one:

- a. Image classification involves sorting images by size, while segmentation involves sorting by color.
- b. Image classification is used for medical images, while segmentation is used for artistic images.
- c. Image classification involves transforming images to grayscale, while segmentation involves transforming them to color.
- d. Image classification involves identifying objects in images, while segmentation involves dividing images into regions. ✔

Question **8**

Correct

Mark 1.00 out of 1.00

16. What is a convolutional neural network (CNN) specialized for?

Select one:

- a. Text analysis
- b. Video compression
- c. Image processing ✔
- d. Audio processing

Question **9**

Correct

Mark 1.00 out of 1.00

49. What is the role of the activation function in a neural network?

Select one:

- a. To adjust the learning rate of the model
- b. To control the shape of the input data
- c. To determine the number of layers in the network
- d. To introduce non-linearity into the model ✔

Question **10**

Correct

Mark 1.00 out of 1.00

50. What is dropout in the context of neural networks?

Select one:

- a. A technique to add noise to the input data for better generalization
- b. A technique to blur images for privacy concerns
- c. A technique to randomly deactivate some neurons during training to prevent overfitting ✔
- d. A technique to eliminate certain classes from the dataset

Question **11**

Correct

Mark 1.00 out of 1.00

7. What is prototype matching in pattern classification?

Select one:

- a. Matching patterns to predefined prototypes for classification ✔
- b. Matching patterns to their original creators
- c. Matching patterns to random prototypes
- d. Matching patterns to their pixel values

Question **12**

Correct

Mark 1.00 out of 1.00

47. What is the purpose of regularization in image classification?

Select one:

- a. To increase the model's complexity
- b. To increase the learning rate of the model
- c. To convert images to grayscale
- d. To prevent overfitting by adding a penalty term to the loss function ✔

Question **13**

Correct

Mark 1.00 out of 1.00

13. What is a neural network in image classification?

Select one:

- a. A network of interconnected patterns
- b. A computational model inspired by the human brain ✔
- c. A network of interconnected cameras
- d. A network of interconnected computers

Question **14**

Correct

Mark 1.00 out of 1.00

27. In machine learning, what does the term "hyperparameter" refer to?

Select one:

- a. The parameters that a model learns during training
- b. The initial pixel values of an image
- c. The color channels of an image
- d. Parameters that are set before training and affect the learning process ✔

Question **15**

Correct

Mark 1.00 out of 1.00

25. What is the role of the padding parameter in a convolutional layer?

Select one:

- a. It adds noise to the image
- b. It reduces the size of the image
- c. It changes the color of the image pixels
- d. It adds extra pixels around the image ✔

Question **16**

Correct

Mark 1.00 out of 1.00

18. What is pooling in the context of CNNs?

Select one:

- a. Aggregating information from a local region of an image ✔
- b. Stretching the pixel values of an image
- c. Converting color images to grayscale
- d. Reducing the size of the image by selecting random pixels

Question **17**

Correct

Mark 1.00 out of 1.00

40. What is a decision boundary in the context of image classification?

Select one:

- a. A boundary that separates different pattern classes ✔
- b. A boundary that divides an image into quadrants
- c. A boundary that connects patterns with similar colors
- d. A boundary that outlines the regions of noise in an image

Question **18**

Correct

Mark 1.00 out of 1.00

10. What is the goal of optimum statistical classifiers?

Select one:

- a. To classify patterns without using any statistical methods
- b. To classify patterns based on their artistic value
- c. To classify patterns based on their physical dimensions
- d. To achieve the highest possible accuracy in classification ✔

Question **19**

Correct

Mark 1.00 out of 1.00

14. Which of the following is a characteristic of deep learning neural networks?

Select one:

- a. They can automatically learn features from data ✔
- b. They have a single layer
- c. They require minimal training data
- d. They don't require any optimization

Question **20**

Correct

Mark 1.00 out of 1.00

8. Which of the following is NOT a step in prototype-based pattern classification?

Select one:

- a. Prototype creation
- b. Feature extraction
- c. Pattern negation ✔
- d. Pattern normalization

Question **21**

Correct

Mark 1.00 out of 1.00

32. What are features in the context of image pattern classification?

Select one:

- a. Distinctive visual elements that help distinguish patterns ✔
- b. Unique artistic elements in images
- c. The size of patterns in pixels
- d. The color of patterns in images

Question **22**

Correct

Mark 1.00 out of 1.00

15. What is the primary purpose of the activation function in a neural network?

Select one:

- a. To control the brightness of images
- b. To calculate the average of pixel values
- c. To introduce non-linearity into the model ✔
- d. To determine the color of patterns

Question **23**

Correct

Mark 1.00 out of 1.00

17. What is a kernel or filter in a CNN?

Select one:

- a. A small image pattern used for image compression
- b. A feature used to label classes
- c. A set of weights used for image enhancement
- d. A small matrix used for feature detection ✔

Question **24**

Correct

Mark 1.00 out of 1.00

3. Which term refers to the predefined categories that images are classified into?

Select one:

- a. Prototypes
- b. Neurons
- c. Features
- d. Classes ✔

Question **25**

Correct

Mark 1.00 out of 1.00

28. What is a learning rate in the context of training machine learning models?

Select one:

- a. The rate at which patterns are classified during testing
- b. The rate at which a model learns from the training data ✔
- c. The rate at which images are generated during data augmentation
- d. The rate at which classes are assigned to patterns

Question **26**

Correct

Mark 1.00 out of 1.00

1. What is image pattern classification?

Select one:

- a. Categorizing images into classes based on their features ✔
- b. Arranging images based on their resolution
- c. Grouping images by color
- d. Sorting images by size

Question **27**

Correct

Mark 1.00 out of 1.00

20. Which technique is used to split a dataset into training, validation, and testing sets?

Select one:

- a. Dataset normalization
- b. Image mirroring
- c. Train-test split ✔
- d. Data augmentation

Question **28**

Correct

Mark 1.00 out of 1.00

5. How are pattern classes typically represented in image classification?

Select one:

- a. As video clips
- b. As raw pixel values ✔
- c. As audio files
- d. As numerical features

Question **29**

Correct

Mark 1.00 out of 1.00

43. What is backpropagation in the context of neural networks?

Select one:

- a. A method to train neural networks by adjusting weights based on prediction errors ✔
- b. The process of increasing the depth of a neural network
- c. A technique to reduce the size of images
- d. A technique to increase the brightness of images

Question **30**

Correct

Mark 1.00 out of 1.00

34. Which term refers to the process of identifying and extracting relevant information from images?

Select one:

- a. Prototype matching
- b. Pattern normalization
- c. Class labeling
- d. Feature extraction ✔

Question **31**

Correct

Mark 1.00 out of 1.00

22. What is transfer learning in image classification?

Select one:

- a. Using a pre-trained model and fine-tuning it on a new dataset ✔
- b. Converting images to a different format
- c. Transferring patterns between different image classes
- d. Moving images from one folder to another

Question **32**

Correct

Mark 1.00 out of 1.00

12. What does a confusion matrix in image classification represent?

Select one:

- a. A matrix showing the rotation angles of patterns
- b. A matrix showing the misclassifications between different pattern classes ✔
- c. A matrix indicating the brightness levels of patterns
- d. A matrix showing the different shades of confusion in images

Question **33**

Correct

Mark 1.00 out of 1.00

11. In the context of image classification, what does the term "Bayes" refer to?

Select one:

- a. A type of camera lens
- b. A specific pattern class
- c. A famous artist
- d. Bayes' theorem and probabilistic methods ✔

Question **34**

Correct

Mark 1.00 out of 1.00

35. What is the main idea behind prototype-based pattern classification?

Select one:

- a. Matching patterns to randomly generated prototypes
- b. Matching patterns to prototypes generated during testing
- c. Matching patterns to predefined prototypes representing class examples ✔
- d. Matching patterns to abstract prototypes with no visual representation

Question **35**

Correct

Mark 1.00 out of 1.00

33. How are pattern classes typically defined in image classification?

Select one:

- a. By the number of pixels in each pattern
- b. By the textures present in patterns ✔
- c. By the arrangement of patterns in the image
- d. By the random colors assigned to patterns

Question **36**

Correct

Mark 1.00 out of 1.00

48. What is early stopping in the training of machine learning models?

Select one:

- a. Stopping the model from classifying patterns
- b. Terminating the training process after a fixed number of iterations
- c. Stopping the model from learning new features
- d. Terminating the training process when the model's performance on the validation set stops improving ✔

Question **37**

Correct

Mark 1.00 out of 1.00

37. In prototype-based pattern classification, what is a prototype?

Select one:

- a. A pattern used for validation purposes
- b. A randomly generated image
- c. A representative example of a pattern class ✔
- d. A template used to create patterns

Question **38**

Correct

Mark 1.00 out of 1.00

36. What is the purpose of pattern normalization in prototype-based classification?

Select one:

- a. To resize patterns to a standard resolution
- b. To bring patterns to a common scale and orientation ✔
- c. To convert patterns to grayscale images
- d. To enhance patterns by adding noise

Question **39**

Correct

Mark 1.00 out of 1.00

46. Why is cross-validation important in image classification?

Select one:

- a. To assess the performance of a model on unseen data ✔
- b. To validate the colors used in images
- c. To determine the size of patterns in images
- d. To identify the class labels of patterns

Question **40**

Correct

Mark 1.00 out of 1.00

29. What is the primary goal of image pattern classification?

Select one:

- a. To compress images for storage
- b. To create visually appealing images
- c. To classify images into predefined categories based on their features ✔
- d. To generate random patterns

Question **41**

Correct

Mark 1.00 out of 1.00

9. What is a prototype in pattern classification?

Select one:

- a. A pattern with added noise
- b. A representative example of a pattern class ✔
- c. A distorted version of a pattern
- d. A unique pattern created during testing

Question **42**

Correct

Mark 1.00 out of 1.00

44. How do deep convolutional neural networks (CNNs) differ from traditional neural networks?

Select one:

- a. CNNs are shallower and focus on patterns with simple features, while traditional neural networks handle complex features.
- b. CNNs are limited to grayscale images, while traditional neural networks can handle color images.
- c. CNNs are deeper and incorporate convolutional and pooling layers specifically designed for image data. ✔
- d. CNNs use only fully connected layers, while traditional neural networks use only convolutional layers.

Question **43**

Correct

Mark 1.00 out of 1.00

2. Which of the following is NOT a common application of image pattern classification?

Select one:

- a. Social media posting ✔
- b. Autonomous driving
- c. Object recognition
- d. Medical diagnosis

Question **44**

Correct

Mark 1.00 out of 1.00

39. What is the role of Bayes' theorem in image classification?

Select one:

- a. It defines the total number of patterns in a dataset
- b. It determines the color palette used in images
- c. It calculates the average pixel value of patterns
- d. It provides a way to calculate the probability of class membership given the observed pattern ✔

Question **45**

Correct

Mark 1.00 out of 1.00

24. What is the purpose of using multiple convolutional layers in a CNN?

Select one:

- a. To learn hierarchical features from images ✔
- b. To eliminate noise from the input image
- c. To decrease the number of feature maps
- d. To increase the size of the input image

Question **46**

Correct

Mark 1.00 out of 1.00

26. Which image preprocessing technique involves scaling the pixel values to have a zero mean and unit variance?

Select one:

- a. Dataset normalization ✔
- b. Feature extraction
- c. Data augmentation
- d. Image compression

Question **47**

Correct

Mark 1.00 out of 1.00

6. In pattern classification, what is a class label?

Select one:

- a. The size of the pattern in pixels
- b. A unique identifier for a pattern class ✔
- c. A label attached to a pattern representing its color
- d. The name of the person who created the pattern

Question **48**

Correct

Mark 1.00 out of 1.00

42. In neural networks, what does the term "weight" represent?

Select one:

- a. The physical weight of the network
- b. The importance of each pixel in an image
- c. The numerical parameter that adjusts the strength of connections between neurons ✔
- d. The amount of noise added to the input data

Question **49**

Correct

Mark 1.00 out of 1.00

4. What are patterns in the context of image classification?

Select one:

- a. Repetitive textures in images ✔
- b. Regular shapes in images
- c. Blurred areas in images
- d. Noise and artifacts in images

Question **50**

Correct

Mark 1.00 out of 1.00

38. What is the goal of an optimum statistical classifier in image pattern classification?

Select one:

- a. To minimize the number of pattern classes
- b. To maximize the accuracy of classification using probabilistic methods ✔
- c. To classify patterns without using any statistical methods
- d. To achieve the highest possible resolution for images

◄ Chương 7: Trắc nghiệm kiến thức

Jump to...

Quiz: kiểm tra kiến thức Chương 6 - Nén ảnh ►