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**Time taken** 10 mins 25 secs

**Marks** 46.00/50.00

**Grade** 9.20 out of 10.00 (92%)

Question **1**

Complete

Mark 1.00 out of 1.00

Principal components are commonly used as feature descriptors to capture:

Select one:

- ☒ a. Shape information
- ☐ b. Spatial resolution
- ☐ c. Color information
- ☐ d. Texture information

Question **2**

Complete

Mark 1.00 out of 1.00

What is a key advantage of using SIFT for image feature extraction?

Select one:

- ☐ a. Sensitivity to image noise
- ☐ b. Limited feature detection
- ☐ c. Dependence on color information
- ☒ d. Invariance to rotation and scaling

Question **3**

Complete

Mark 1.00 out of 1.00

How does SIFT achieve scale invariance?

Select one:

- ☐ a. By applying color correction
- ☒ b. By using scale-space representation
- ☐ c. By adjusting the contrast
- ☐ d. By resizing the image

Question **4**

Complete

Mark 0.00 out of 1.00

What is the purpose of histogram of oriented gradients (HOG) in image feature extraction?

Select one:

- ☒ a. Highlighting object boundaries
- ☐ b. Extracting texture information
- ☐ c. Describing color distribution
- ☐ d. Capturing shape information

Question **5**

Complete

Mark 1.00 out of 1.00

What do whole-image features describe in image processing?

Select one:

- ☐ a. Specific regions of interest
- ☐ b. Object boundaries
- ☒ c. Statistical properties of the entire image
- ☐ d. Localized pixel values

Question **6**

Complete

Mark 1.00 out of 1.00

In image processing, what is the purpose of histogram features?

Select one:

- ☐ a. Reducing dimensionality
- ☐ b. Achieving scale invariance
- ☐ c. Capturing shape information
- ☒ d. Describing color distribution

Question **7**

Complete

Mark 0.00 out of 1.00

Which of the following is a limitation of using boundary feature descriptors?

Select one:

- ☐ a. Insensitivity to object boundaries
- ☐ b. Invariance to rotation and scaling
- ☒ c. Sensitivity to image noise
- ☐ d. Difficulty in capturing texture information

Question **8**

Complete

Mark 1.00 out of 1.00

Which of the following is a characteristic of boundary feature descriptors?

Select one:

- ☐ a. Statistical properties of the entire image
- ☐ b. Extraction of texture information
- ☐ c. Focus on localized pixel values
- ☒ d. Representation of object boundaries

Question **9**

Complete

Mark 1.00 out of 1.00

Which feature descriptor is sensitive to changes in image scale and rotation?

Select one:

- ☐ a. Principal component analysis (PCA)
- ☒ b. Scale-Invariant Feature Transform (SIFT)
- ☐ c. Gabor filters
- ☐ d. Histogram features

Question **10**

Complete

Mark 1.00 out of 1.00

What does the term "scale invariance" mean in the context of feature extraction?

Select one:

- ☒ a. Robustness to changes in image orientation and size
- ☐ b. Dependence on color information
- ☐ c. Limited representation of object boundaries
- ☐ d. Insensitivity to image noise

Question **11**

Complete

Mark 1.00 out of 1.00

What is the primary purpose of scale-space representation in image feature extraction?

Select one:

- ☒ a. Achieving scale invariance
- ☐ b. Enhancing color saturation
- ☐ c. Highlighting object boundaries
- ☐ d. Reducing image size

Question **12**

Complete

Mark 1.00 out of 1.00

In SIFT, how are keypoints selected from the image?

Select one:

- ☐ a. Based on image intensity
- ☒ b. Maximizing local contrast
- ☐ c. Using color information
- ☐ d. Random sampling

Question **13**

Complete

Mark 1.00 out of 1.00

What does Principal Component Analysis (PCA) aim to achieve in feature extraction?

Select one:

- ☐ a. Describing color distribution
- ☐ b. Highlighting object boundaries
- ☒ c. Reducing dimensionality
- ☐ d. Enhancing image resolution

Question **14**

Complete

Mark 1.00 out of 1.00

Which of the following is a commonly used boundary feature descriptor?

Select one:

- ☐ a. Histogram of oriented gradients (HOG)
- ☐ b. Gabor filters
- ☐ c. Laplacian of Gaussian (LoG)
- ☒ d. Chain codes

Question **15**

Complete

Mark 1.00 out of 1.00

Which of the following is an example of a region feature descriptor?

Select one:

- ☐ a. Canny edge detector
- ☒ b. Histogram of oriented gradients (HOG)
- ☐ c. Gaussian blur
- ☐ d. Laplacian of Gaussian (LoG)

Question **16**

Complete

Mark 1.00 out of 1.00

What is a limitation of using whole-image features for image analysis?

Select one:

- ☐ a. Difficulty in capturing texture information
- ☐ b. Sensitivity to image noise
- ☐ c. Invariance to rotation and scaling
- ☒ d. Limited representation of object boundaries

Question **17**

Complete

Mark 0.00 out of 1.00

What role do Gabor filters play in image feature extraction?

Select one:

- ☒ a. Capturing shape information
- ☐ b. Highlighting object boundaries
- ☐ c. Capturing texture information
- ☐ d. Describing overall image structure

Question **18**

Complete

Mark 1.00 out of 1.00

How does the Histogram of Oriented Gradients (HOG) handle variations in object appearance?

Select one:

- ☐ a. By focusing on localized pixel values
- ☒ b. By capturing texture information
- ☐ c. By resizing the image
- ☐ d. By adjusting color saturation

Question **19**

Complete

Mark 1.00 out of 1.00

In image feature extraction, what role do principal components play?

Select one:

- ☒ a. Capturing shape information
- ☐ b. Enhancing image brightness
- ☐ c. Describing color distribution
- ☐ d. Reducing image resolution

Question **20**

Complete

Mark 1.00 out of 1.00

How does principal component analysis (PCA) contribute to feature extraction?

Select one:

- ☐ a. Highlighting object boundaries
- ☐ b. Describing color distribution
- ☒ c. Reducing dimensionality
- ☐ d. Capturing shape information

Question **21**

Complete

Mark 1.00 out of 1.00

What is a disadvantage of using whole-image features?

Select one:

- ☐ a. Dependence on color information
- ☐ b. Difficulty in capturing texture information
- ☐ c. Insensitivity to image noise
- ☒ d. Limited representation of object boundaries

Question **22**

Complete

Mark 1.00 out of 1.00

What is the primary purpose of image feature extraction in digital image processing?

Select one:

- ☐ a. Applying color correction
- ☐ b. Enhancing image resolution
- ☐ c. Reducing image size
- ☒ d. Extracting relevant information for analysis

Question **23**

Complete

Mark 1.00 out of 1.00

Which of the following is a drawback of using Gabor filters for feature extraction?

Select one:

- ☐ a. Difficulty in capturing texture information
- ☐ b. Limited representation of object boundaries
- ☐ c. Insensitivity to changes in image orientation
- ☒ d. Sensitivity to image noise



Question **24**

Complete

Mark 1.00 out of 1.00

In the context of image feature extraction, what does SIFT stand for?

Select one:

- ☒ a. Scale-Invariant Feature Transform
- ☐ b. Simple Image Feature Transform
- ☐ c. Spatial Information Filter Technique
- ☐ d. Structured Image Feature Tracker

Question **25**

Complete

Mark 1.00 out of 1.00

What is the primary purpose of applying Principal Component Analysis (PCA) in image processing?

Select one:

- ☒ a. Reducing dimensionality
- ☐ b. Highlighting object boundaries
- ☐ c. Capturing texture information
- ☐ d. Describing color distribution

Question **26**

Complete

Mark 1.00 out of 1.00

In image processing, what does the term "scale space" refer to?

Select one:

- ☒ a. A series of images at different scales
- ☐ b. Robustness to changes in image orientation
- ☐ c. Representation of object boundaries
- ☐ d. Insensitivity to image noise

Question **27**

Complete

Mark 1.00 out of 1.00

What role does the Laplacian of Gaussian (LoG) play in edge detection?

Select one:

- ☒ a. Highlighting object boundaries
- ☐ b. Enhancing object colors
- ☐ c. Reducing image resolution
- ☐ d. Adjusting color saturation

Question **28**

Complete

Mark 1.00 out of 1.00

What is the purpose of boundary feature descriptors?

Select one:

- ☐ a. Describing the overall image structure
- ☒ b. Representing characteristics of object boundaries
- ☐ c. Highlighting background information
- ☐ d. Enhancing color saturation

Question **29**

Complete

Mark 1.00 out of 1.00

In image processing, what does the background refer to?

Select one:

- ☐ a. Image noise
- ☐ b. Foreground objects
- ☐ c. Image brightness
- ☒ d. Unwanted information

Question **30**

Complete

Mark 0.00 out of 1.00

What is the primary purpose of region feature descriptors?

Select one:

- ☐ a. Representing characteristics of object boundaries
- ☐ b. Describing overall image structure
- ☐ c. Highlighting background information
- ☒ d. Extracting relevant information for analysis

Question **31**

Complete

Mark 1.00 out of 1.00

How does region feature extraction contribute to object recognition?

Select one:

- ☐ a. Describing color distribution
- ☐ b. Highlighting object boundaries
- ☐ c. Reducing image resolution
- ☒ d. Capturing texture information

Question **32**

Complete

Mark 1.00 out of 1.00

Which feature descriptor is often used for achieving scale invariance in image processing?

Select one:

- ☐ a. Principal component analysis (PCA)
- ☐ b. Histogram features
- ☐ c. Gabor filters
- ☒ d. Scale-Invariant Feature Transform (SIFT)

Question **33**

Complete

Mark 1.00 out of 1.00

What is the purpose of boundary feature descriptors in image feature extraction?

Select one:

- ☐ a. Capturing color distribution
- ☒ b. Representing characteristics of object boundaries
- ☐ c. Reducing image resolution
- ☐ d. Describing overall image structure

Question **34**

Complete

Mark 1.00 out of 1.00

How does the Histogram of Oriented Gradients (HOG) contribute to image feature extraction?

Select one:

- ☐ a. Describing color distribution
- ☒ b. Capturing shape information
- ☐ c. Reducing image size
- ☐ d. Highlighting object boundaries

Question **35**

Complete

Mark 1.00 out of 1.00

Which feature descriptor is commonly used for capturing texture information?

Select one:

- ☒ a. Gabor filters
- ☐ b. Histogram features
- ☐ c. Principal component analysis (PCA)
- ☐ d. Scale-Invariant Feature Transform (SIFT)

Question **36**

Complete

Mark 1.00 out of 1.00

In image feature extraction, what does the term "whole-image features" refer to?

Select one:

- ☐ a. Representation of object boundaries
- ☐ b. Specific regions of interest
- ☐ c. Localized pixel values
- ☒ d. Statistical properties of the entire image

Question **37**

Complete

Mark 1.00 out of 1.00

Which of the following is a common technique for boundary preprocessing in image feature extraction?

Select one:

- ☐ a. Pixel averaging
- ☐ b. Contrast adjustment
- ☒ c. Edge detection
- ☐ d. Histogram equalization

Question **38**

Complete

Mark 1.00 out of 1.00

Which feature extraction method is robust to changes in image orientation?

Select one:

- ☐ a. Region feature descriptors
- ☐ b. Whole-image features
- ☐ c. Boundary feature descriptors
- ☒ d. Scale-Invariant Feature Transform (SIFT)

Question **39**

Complete

Mark 1.00 out of 1.00

Which of the following is a characteristic of scale-invariant features?

Select one:

- ☐ a. Limited representation of object boundaries
- ☐ b. Dependence on image orientation
- ☐ c. Emphasis on color information
- ☒ d. Insensitivity to changes in image scale

Question **40**

Complete

Mark 1.00 out of 1.00

In the context of feature extraction, what is the purpose of Gabor filters?

Select one:

- ☐ a. Highlighting object boundaries
- ☐ b. Describing color distribution
- ☐ c. Reducing image resolution
- ☒ d. Capturing texture information

Question **41**

Complete

Mark 1.00 out of 1.00

Which of the following is a characteristic of whole-image features?

Select one:

- ☐ a. Focus on localized pixel values
- ☐ b. Representation of object boundaries
- ☐ c. Extraction of texture information
- ☒ d. Statistical properties of the entire image

Question **42**

Complete

Mark 1.00 out of 1.00

Which feature extraction method is suitable for recognizing objects in different scales and orientations?

Select one:

- ☐ a. Boundary feature descriptors
- ☐ b. Region feature descriptors
- ☐ c. Whole-image features
- ☒ d. Scale-Invariant Feature Transform (SIFT)

Question **43**

Complete

Mark 1.00 out of 1.00

How does boundary preprocessing contribute to image feature extraction?

Select one:

- ☐ a. By applying color correction
- ☐ b. By emphasizing object colors
- ☒ c. By highlighting object boundaries
- ☐ d. By reducing image resolution

Question **44**

Complete

Mark 1.00 out of 1.00

What is the primary advantage of using region feature descriptors over whole-image features?

Select one:

- ☐ a. Difficulty in capturing texture information
- ☐ b. Increased sensitivity to image noise
- ☐ c. Greater dependence on color information
- ☒ d. Improved representation of object boundaries

Question **45**

Complete

Mark 1.00 out of 1.00

How does the Laplacian of Gaussian (LoG) contribute to image feature extraction?

Select one:

- ☐ a. Reducing image resolution
- ☐ b. Capturing shape information
- ☐ c. Describing color distribution
- ☒ d. Highlighting object boundaries

Question **46**

Complete

Mark 1.00 out of 1.00

In the context of boundary preprocessing, what is the purpose of edge detection?

Select one:

- ☒ a. Highlighting object boundaries
- ☐ b. Adjusting color saturation
- ☐ c. Enhancing object colors
- ☐ d. Reducing image size

Question **47**

Complete

Mark 1.00 out of 1.00

What is the primary function of image feature extraction in digital image processing?

Select one:

- ☒ a. Extracting relevant information for analysis
- ☐ b. Reducing image resolution
- ☐ c. Increasing image brightness
- ☐ d. Enhancing image contrast



Question **48**

Complete

Mark 1.00 out of 1.00

How does region feature extraction differ from boundary feature extraction?

Select one:

- ☐ a. Capturing texture information
- ☒ b. Focus on overall image structure
- ☐ c. Describing color distribution
- ☐ d. Emphasis on object boundaries

Question **49**

Complete

Mark 1.00 out of 1.00

How does the Scale-Invariant Feature Transform (SIFT) handle changes in image orientation?

Select one:

- ☐ a. By adjusting color saturation
- ☐ b. By resizing the image
- ☒ c. By using scale-space representation
- ☐ d. By applying color correction

Question **50**

Complete

Mark 1.00 out of 1.00

Which of the following is a characteristic of whole-image features?

Select one:

- ☐ a. Extraction of texture information
- ☒ b. Statistical properties of the entire image
- ☐ c. Representation of object boundaries
- ☐ d. Focus on localized pixel values

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