

Question Paper

Exam Date & Time: 20-Apr-2018 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES (SOIS) SECOND SEMESTER ME MEDICLE SOFTWARE DEGREE EXAMINATION - APRIL

Friday, 20 April 2018

Time : 10:00am to 1:00pm

Advanced Image Processing [MMS 610]

Marks: 100

Duration: 180 mins.

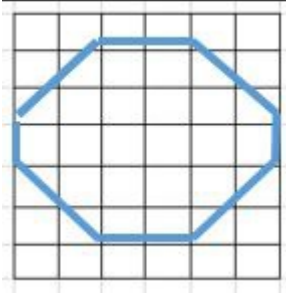
Answer all the questions.

- 1) Explain the following thresholding approaches used for segmentation. (i) Adaptive thresholding and (ii) Optimal thresholding (5 +5 marks) (10)
- 2) Define morphological operations namely erosion and dilation. Explain using an example. How are they different from opening and closing? (4+3+3 marks) (10)
- 3) Briefly describe the following clustering algorithms (i) Agglomerative clustering algorithm (ii) K Means clustering algorithm (5 + 5 marks) (10)
- 4) Explain how MISD architecture can be used for 3 point convolution. (10 marks) (10)
- 5) What is the role of a classifier in the pattern recognition system? How is the performance of a classifier evaluated? (2 +8 marks) (10)
- 6) What is meant by Local Binary Patterns? Obtain the LBP and C values for the following image. Consider a 3X3 neighborhood. (2+8 marks) (10)

2	1	2	3	4	2
1	3	4	4	1	3
2	3	4	3	3	2
3	3	2	2	3	1

- 7) What is meant by eigenvalue and eigenvector of a matrix? Explain the significance of eigenvectors in PCA? (5 + 5 marks) (10)

- 8) Describe the use of Bayesian classifier for the purpose of classification with the help of an example. (10)
- 9) (a) Obtain the shape signature of a rectangular object. (10)
(b) Obtain the normalized chain code for the boundary shown in the figure below. (5+5 marks)



- 10) What is meant by image registration. What are the different types of registration? Explain the important components of image registration framework. (2+2+6 marks) (10)

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