Lesson Quiz

Answer the following questions to test your knowledge of the concepts and techniques taught in this lesson.

Note: Some of the questions are based on the lab associated with this lesson , so make sure you have explored and run the lab.

Question 1

1.0/1.0 point (graded)

Which of the following is known as a region growing algorithm?

- Otsu's method
- Watershed algorithm ✔
- Expectation Minimization
- Kalman Filtering

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Question 2

1.0/1.0 point (graded)

Which of the following is a particular feature of OpenCV's watershed algorithm versus other possible watershed implementations?

- (•) It takes two images, the image of interest and a helper template ✔
- ( ) It works without a helper template
- ( ) It requires live user interaction to work effectively
- ( ) It only works for highly colored images

Explanation
The implementation needs a helper template. There are no special requirements around colors and it does not require live user interaction. We do a lab without live user interaction. However, many of the algorithms in the family do prefer a user to identify the region seeds to start them off.

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ℹ Answers are displayed within the problem

Question 3

1.0/1.0 point (graded)

Which of the following describes what Superpixellation is used for?

- ( ) To increase the complexity of a simple image
- (•) To reduce the complexity of an image ✔

- To create a 3 dimensional point cloud from a series of related images
- To stitch multiple images together into a larger image.

Explanation
It is a technique used to reduce the complexity of an image. 3D point cloud creation is 3D point cloud creation. Point Clouds are a 'thing' of their own. Nothing to do with super-pixelation. Stitching multiple images together is mosaicing. It has nothing to do with super-pixellation.

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Answers are displayed within the problem

Question 4

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, you were asked to call the Gaussian Blur routine on the 'img' matrix before sending it to the watershed algorithm. Which of these Gaussian kernel sizes would you expect to most closely resemble the reference image you were provided with ?

- a. 2, 2
- b. 21, 21 ✔
- c. 220, 220
- d. 2211, 2211

Explanation

b. 21, 21 is the correct answer. The other answers are orders of magnitude off and will result in very poor results.

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Answers are displayed within the problem

Question 5

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, when labelling markers, you will have had to increment the values of all labels and set the unknown region to '0'. Which of the following answers best explains why this is the case ?

- a. Open CV's watershed expects '0' to contain the unknown region. ✔
- b. Open CV's connectedComponents routine is a 0-based array.
- c. Open CV's watershed is a 1-based array.
- d. Open CV's connectedComponents routine is a 1-based array.

Explanation
0-based nor 1-based arrays is not the issue here. The issue here is that connectedComponents starts labelling its components from 0 and effectively places the 'unknown' region at 255. However Watershed expects the unknown region to be at '0'. This is pretty typical of the type of data manipulation we have to do between calls to library functions. Close reading of the parameters to these library calls is required.

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Answers are displayed within the problem

Question 6

1/1 point (graded)

The following is a question based on the lab in this lesson. In this lab, you were asked to segment an image of tomatoes into super-pixels to resemble a reference image. Which of these is the closest number of segments to the reference image?

- a. 8
- b. 80
- c. 800 ✔
- d. 8000

Explanation

Hopefully when ff you run the lab, it was reasonably clear what the correct answer should be. 8 and 8000 will be way off.

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Answers are displayed within the problem

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