Quiz Submissions - mini-Quiz 2

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Attempt 2

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Submission View

Your quiz has been submitted successfully.

Question 1 **1 / 1 point**

Consider the following two tables and calculate their dissimilarity using as metric the sum of squared differences.

$$A = \begin{pmatrix} 10 & 15 & 20 \\ 20 & 20 & 25 \\ 10 & 15 & 20 \end{pmatrix} \quad B = \begin{pmatrix} 15 & 15 & 15 \\ 20 & 20 & 20 \\ 30 & 30 & 30 \end{pmatrix}$$

Answer: 800 ✓

Question 2 **1 / 1 point**

Order the following stereo vision algorithms, according to their typical computational complexity:
(where 1 is LEAST computational demanding, and 3 is MOST computational demanding)

- ✓ 1 Dense Local Stereo Vision Algorithm
- ✓ 2 Dense Dynamic Programming-based Stereo Vision Algorithm
- ✓ 3 Dense Graph Cuts-based Stereo Vision Algorithm

Question 3 **1 / 1 point**

What does a low disparity value mean?

- The matching pixels are found far from the same position in both images
- ✓ The matching pixels are found near the same position in both images
- Disparity does not tells us about the position of the pixels, but about how similar they are
- There are no matching pixels between the two images

Question 4 **1 / 1 point**

$$\begin{pmatrix} a & b & c \\ d & e & f \\ g & h & i \end{pmatrix}$$

Assuming this camera matrix please fill in the correct correspondences:

- ✓ 3 e
- ✓ 5 i
- ✓ 1 a
- ✓ 4 c
- ✓ 2 f

1. fx
2. cy
3. fy
4. cx
5. 1

Question 5 **0 / 1 point**

Camera Projection

Assuming a camera at location [X Y Z] = [0, 0, 0] with a pose defined by the following rotation matrix:

[1, 0, 0]
[0, 1, 0]
[0, 0, 1]

given a camera matrix

[725, 0, 631]
[0, 726, 360]
[0, 0, 1]

At which "x **camera coordinate**" would the following 3D point be depicted:
[X, Y, Z] = [1,1,3]

Answer:

812 ✗ **(873)**

Question 6 **1 / 1 point**

Consider a stereo vision system.
Choose all the statements below that are true.

- ✓ All epipolar lines are parallel to the optical axis
- ✓ The epipoles lie on the baseline-containing line
- ✓ All epipolar lines meet at the optical center
- ✓ The baseline intersects the epipolar plane at the epipoles
- ✓ All epipolar lines intersect at the epipoles

✓ The epipoles can be outside the images

Question 7 **1 / 1 point**

Choose all the statements below that are true.

✓ The fundamental matrix projects a 3D point in the right camera frame to a 2D point in the left image frame.

✓ The fundamental matrix projects a 3D point in the right camera frame to a 3D point in the left camera frame.

✓ The essential matrix includes the pose of the cameras with respect to each other.

✓ The fundamental matrix projects a point in the right image frame to a point in the left image.

Attempt Score:85.71 %

Overall Grade (highest attempt):85.71 %

Done