Quiz Submissions - mini-Quiz 2 ✕

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Attempt 1

Written: 26 February, 2022 11:16 AM - 26 February, 2022 12:13 PM
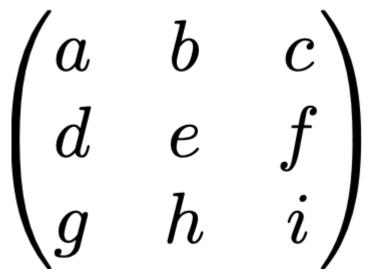
Submission View

Your quiz has been submitted successfully.

Question 1 **0 / 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.

Question 2 **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:

✔ __4__   c   **1.** fx

✔ __1__   a   **2.** cy

✔ __2__   f   **3.** fy

✔ __3__   e   **4.** cx

✔ __5__   i   **5.** 1

Question 3   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] = [1,1,4]

Answer:

3,249 ✖ **(812)**

Question 4   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 5　　　　　　　　　　　　　　　　　　　　　　　　　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)

✔ __2__　Dense Dynamic Programming-based Stereo Vision Algorithm

✔ __1__　Dense Local Stereo Vision Algorithm

✔ __3__　Dense Graph Cuts-based Stereo Vision Algorithm

Question 6　　　　　　　　　　　　　　　　　　　　　　　　　0 / 1 point

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

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

Answer: 850　✘　(800)

Question 7　　　　　　　　　　　　　　　　　　　　　　　　0.333 / 1 point

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

➡ ✔ ◻ The epipoles lie on the baseline-containing line

✔ ◻ All epipolar lines meet at the optical center

➡ ✔ ◻ All epipolar lines intersect at the epipoles

➡ ✖ ☐ The epipoles can be outside the images

✖ ☐ The baseline intersects the epipolar plane at the epipoles

✔ ☐ All epipolar lines are parallel to the optical axis

Attempt Score:47.61 %

Overall Grade (highest attempt):47.61 %

Done