

Question 1 (1 point) ✓ Saved

Which of the following algorithms requires as input explicit matches between point pairs from two point clouds BEFORE it starts executing?

☒ Kabsch algorithm ← algorithm used during loose alignment

☐ FPFH

☐ Spin Images

☐ ICP

Question 2 (1 point)

Please select the correct among the following statements concerning the Iterative Closest Points (ICP) algorithm:

☒ ICP provides a rigid transformation between 2 point clouds

☐ ICP works best if the 2 point clouds are far from each other.

☐ ICP provides an affine transformation between 2 point clouds

☒ ICP works best if an initial rough estimation of the alignment of 2 point clouds is known.

☐ ICP is guaranteed to provide the optimal transformation that best aligns 2 point clouds

Question 3 (1 point)

Which of the following clustering results could have been produced using k-means?
(choose all correct answers)











← single linkage

← All linkages

← Do not exist

← Average linkage

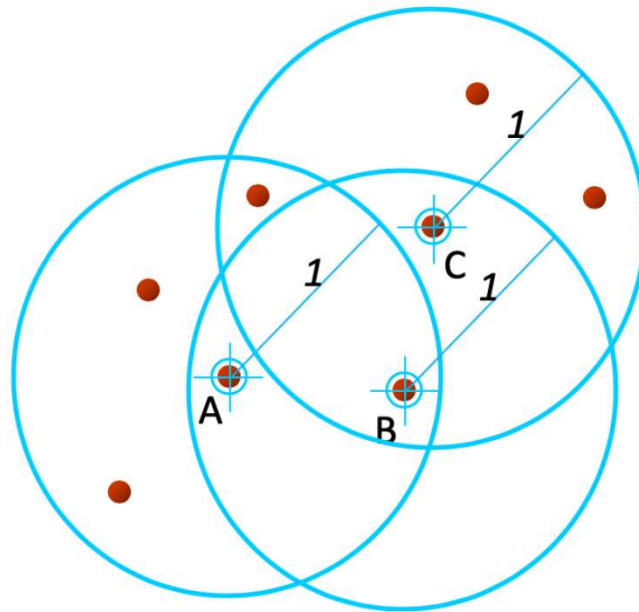
☐ A

☐ B

☒ C

☐ D

☒ E



$A = 5 \text{ pts} > 4 \rightarrow \underline{\text{Core}}$
 $C = 5 \text{ pts} > 4 \rightarrow \underline{\text{Core}}$
 $B = 3 \text{ pts} < 4$ but is in
 \downarrow a core neighbor (A&C)
Border

How would points A, B and C be characterized according to DBSCAN?
 (assume $\epsilon=1$ and $MinPts=4$)

- ☐ A: noise | B: core | C: noise
- ☐ A: core | B: border | C: border
- ☐ A: border | B: noise | C: border
- ☐ A: noise | B: border | C: noise
- ☒ A: core | B: border | C: core
- ☐ A: core | B: core | C: core
- ☐ A: core | B: noise | C: core
- ☐ A: noise | B: border | C: core

Question 5 (1 point)

Consider a color image with dimensions 640x480 pixels. We would like to cluster its pixels making full use of both geometric and color information (including intensity/lightness).

How many clusters will the Mean Shift algorithm consider initially?
(provide the exact number below)

1 pixel \equiv 1 cluster:
Dim = 640×480
Dim = 307200

307200 ✓

Question 6 (1 point)

Consider a color image with dimensions 640x480 pixels. We would like to cluster its pixels making full use of both geometric and color information (including intensity/lightness).

What would be the dimensionality of the problem in this case?

☐ 2

☐ 4

☐ 3

☒ 5 \rightarrow Dim $\underset{1}{640} \times \underset{2}{480}$, $\underset{3}{z}$, $\underset{4}{R}$, $\underset{5}{G}$, $\underset{5}{B}$