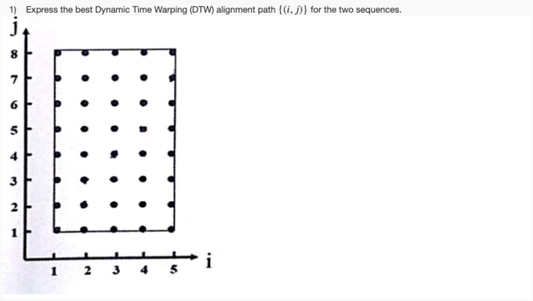
Assignment 12

The due date for submitting this assignment has passed.

Due on 2021-04-14, 23:59 IST.

As per our records you have not submitted this assignment.

1) Express the best Dynamic Time Warping (DTW) alignment path $\{(i, j)\}$ for the two sequences. *1 point*



- $(1, 1), (2, 3), (2, 4), (3, 4), (3, 5), (4, 4), (4, 5), (5, 7), (5, 8)$
- $(1, 1, (2, 2), (2, 4), (3, 2), (3, 3), (4, 5), (4, 7), (5, 6), (5, 8)$
- $(1, 1), (2, 2), (2, 3), (3, 3), (3, 4), (4, 5), (4, 6), (5, 7), (5, 8)$
- $(1, 1), (2, 3), (2, 4), (3, 4), (3, 5), (4, 4), (4, 6), ((5, 6), (5, 8)$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$(1, 1), (2, 2), (2, 3), (3, 3), (3, 4), (4, 5), (4, 6), (5, 7), (5, 8)$

2) Which of the following statements is/are false? *1 point*

- Particle filter can make the Markov assumption about the system dynamics.
- Kalman filter can update results in a Gaussian belief state representation.
- Kalman filter make use of an iterative process in order to produce its estimations
- Particle filter can be used in order to solve Gaussian noises problems only.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Particle filter can be used in order to solve Gaussian noises problems only.

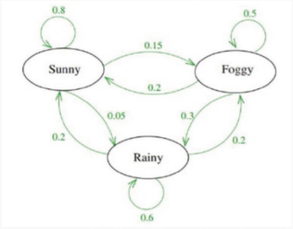
3) We can measure components of optical flow *1 point*

- in tangential to the intensity gradient.
- in perpendicular to the intensity gradient.
- in the direction to the intensity gradient.
- none of these.

No, the answer is incorrect.
Score: 0

Accepted Answers:
in the direction to the intensity gradient.

4) Consider the following state transition diagram with three states: Sunny,Foggy and Rainy. The state transition probabilities are mentioned. *1 point*



Now,suppose you are locked in a room for several days, and you are asked about the weather outside. The only piece of evidence you have is whether your caretaker is carrying an umbrella or not. The probability that your caretaker carries an umbrella is 0.1 if the weather is 'Sunny',0.8 if it is 'Rainy', and 0.3 if it is 'Foggy'.
Suppose you do not know how the weather was when you locked in today.The caretaker always comes without an umbrella for three consecutive days(including today).Calculate the likelihood for the weather on these three days to have been {q1='Foggy',q2='Foggy',q3='Sunny'}.As you do not know how the weather is on the first day (i.e. today),assume the three weather situations are equi-probable. Use the concept of Hidden Markov Model.

- 0.02268
- 0.0057
- 0.0147
- 0.0285

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.0147

5) Which of the following statements about the clustering is/ are true? *1 point*

- K-mean is no explicit estimation of probability density function.
- Mixture of Gaussian is parametric estimation of probability density function.
- Mean shift is non-parametric estimation of probability density function.
- All of the above.

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above.

6) The condition of Dynamic Time Warping which guarantees that the alignment does not omit important features is *1 point*

- Monotonicity.
- Continuity.
- Boundary condition.
- Slope constraint.

No, the answer is incorrect.
Score: 0

Accepted Answers:
Continuity.

7) An iterative localization procedure based on the maximization of a similarity measure is called as *1 point*

- Blob tracking
- Kernel-based tracking
- Contour tracking
- Visual feature matching

No, the answer is incorrect.
Score: 0

Accepted Answers:
Kernel-based tracking

8) The technique used for background subtraction is/are *1 point*

- Frame difference
- Gaussian Mixture model
- Kernel density estimation
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

9) An input image has been converted into a matrix of size 28×28 and a kernel/filter of size 7×7 with a stride of 1. What will be the size of the convolutional matrix? *1 point*

- 22×22
- 21×21
- 28×28
- 7×7

No, the answer is incorrect.
Score: 0

Accepted Answers:
22×22

10) What will be the final result? *1 point*

$image = Image.open('demo.jpg'); \{Output : (1920, 1280)\}$
$newimage = image.thumbnail((400, 400))$
$print(newimage.size)$

- 400×267
- 400×400
- 400×320
- 400×186

No, the answer is incorrect.
Score: 0

Accepted Answers:
400×267