5. The Kernel Perceptron Algorithm

Exercises due Mar 8, 2023 08:59 -03 Completed

Computational Efficiency

0:00 / 0:00 1.0x

Video

Download video file

Transcripts

Download SubRip (.srt) file

Download Text (.txt) file

How the Kernel Perceptron Algorithm Works: Initalization

1/1 point (graded)

Recall that the original Perceptron Algorithm is given as the following:

Perceptron $\left(\left\{\left(x^{(i)}, y^{(i)}\right), i = 1, \ldots, n\right\}, T\right)$:

initialize $\theta = 0$ (vector);

for $t = 1, \ldots, T$,

for $i = 1, \ldots, n$,

if $y^{(i)}\left(\theta \cdot x^{(i)}\right) \leq 0$,

then update $\theta = \theta + y^{(i)} x^{(i)}$.

In the lecture, it was introduced that we can always express θ as

Look at the initialization statement of the algorithm. Which of the following is an equiva
, if we want the same result as initializing ?

- ○
- ○
- ◉
- ○

✔

Submit You have used 1 of 1 attempt

How the Kernel Perceptron Algorithm Works: The Update

1/1 point (graded)

As in the previous problem, our goal is to correctly reformulate the original perceptron a
words, we want the algorithm to be about updating 's instead of .

Kernel Perceptron

initialize to some values;
for
for
if
Update appropriately

Now look at the line "**Update appropriately**" in the above algorithm. Remember that

Assuming that there was a mistake in classifying the th data point i.e.

Submit You have used 1 of 1 attempt

How the Kernel Perceptron Algorithm Works: The Mistake Condit

1/1 point (graded)

Kernel Perceptron

initialize to some values;
for
for
if
Update appropriately

Now look at the line "**Mistake Condition Expressed in** " in the above algorithm. Rem
as

Which of the following conditions is equivalent to ? Remember fr
above that given feature vectors and , we define the Kernel function as

Previous Next

- The first three options for the last question are the same?
  Should be a typo?
- Deadline of Lecture 6 is March 8 , but why I cant submit the answer today? Today is 7March.
  Deadline of Lecture 6 is March 8 , but why I cant submit the answer today? Today is 7March.
- confusion about the iteration
  I thought that there are lots of point which is unclear about this video clip， although I have already spent so
- ? Thinking of kernel as a "similarity measure"
  At 6:58, prof. Jaakkola says we can think of the kernel as a kind of similarity measure. My questions are: 1. W
- Matrix representation mistake condition
- ? I have a question to clarify based on this video.
  So to clarify, does j means the number of updates and i means the number of x which is the number of featu