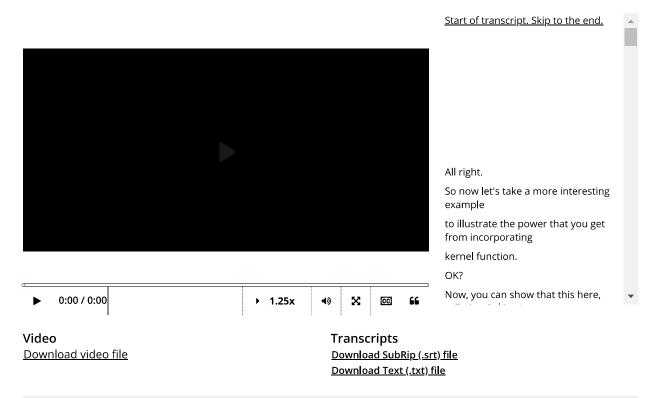
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The Radial Basis Kernel



Calculating the Radial Basis Kernel

1/1 point (graded)

Recall from the video above that the $\operatorname{\it radial}$ basis $\operatorname{\it kernel} K$ is given by

$$K\left(x,x'
ight)=e^{-rac{1}{2}\left|\left|x-x'
ight|
ight|^{2}}$$

Let

$$egin{array}{ll} x &= egin{bmatrix} 1,0,0\end{bmatrix}^T \ x' &= egin{bmatrix} 0,1,0\end{bmatrix}^T. \end{array}$$

Compute the radial basis kernel K(x,x').

$ ightharpoonset e^{-1}$	
$\Box e^{-rac{1}{2}}$	
$\Box e^{rac{\sqrt{2}}{2}}$	
~	

Solution:

$$K(x,x')=e^{-rac{1}{2}||x-x'||^2}=e^{-rac{1}{2}(2)}=e^{-1}.$$

Submit

You have used 1 of 2 attempts

• Answers are displayed within the problem

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Topic: Unit 2 Nonlinear Classification, Linear regression, Collaborative Filtering (2 weeks):Lecture 6. Nonlinear Classification / 7. The Radial Basis Kernel

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▶ I really wish the female teacher carries all the remaining courses. Liget confused with what the male teacher is trying to express (which gets really frustrating). The female teacher explains very well on th.	1
Helpful video https://www.youtube.com/watch?v=Qc5lyLW hns	2
Radial basis function parameter S I have seen other material where instead of multiplying by (1/2) the RBF is multiplied by (1/s^2). Is is a good practice to just use (1/2) for	2
? [STAFF] Why is the radial kernel infinitely dimensional in terms of vectors?? There is no explanation in the video. Should we just believe and accept? Could you give some intuition or additional materials to help us.	4
Fix please Hi, You should not be able to select several options as an answer here, Thanks,	2
? Random forests Why are random forests mentioned in this section?	2
What about issues of overfitting or generalization with Radial Basis Kernel Perceptron Algorithm? As the feature vector representation for radial basis kernel is infinite dimensional, we are effectively using infinite dimensional feature v.	3
? What is the mapping function Phi(x) for radial basis kernel?	5
 Unit2-7 Infinitely powerful Kernel Hi, At video 2:15, "Now, since this kind of function, radial basis kernel, involves polynomial features up to infinite order, it is actually infin. 	3

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